HCD-HPR90/HPR99XM

SERVICE MANUAL

Ver. 1.2 2007.01

Photo: HCD-HPR90

US Model
Canadian Model
HCD-HPR90/HPR99XM
E Model
Australian Model
HCD-HPR90

- HCD-HPR90 is the amplifier, CD player and tuner section in CMT-HPR90.
- HCD-HPR99XM is the amplifier, CD player and tuner section in CMT-HPR99XM.

US and foreign patents licensed from Dolby Laboratories.

Model Name Using Similar Mechanism	NEW
CD Mechanism Name	DLM5B
Base Unit Name	BU-K6BD83S-WOD
Optical Pick-Up Block Name	KSM-213DCP

SPECIFICATIONS

Main unit
AUDIO POWER SPECIFICATIONS
POWER OUTPUT AND TOTAL HARMONIC DISTORION:
US model
With 4 ohm loads, both channels driven, from 120 – 10,000 Hz; rated 85 watts per channel minimum RMS power, with no more than 10% total harmonic distortion from 250 milliwatts to rated output.

Amplifier section
North American model
DIN power output (rated): 68 + 68 W (4 ohms at 1 kHz, DIN)
Continuous RMS power output (reference): 85 + 85 W (4 ohms at 1 kHz, 10% THD)
The following measured at 127 V AC, 60Hz (Mexicam model),
AC 220 – 240 V, 50/60 Hz (Singapore, Argentina and Australian models),
AC 120 – 127 V or 220 – 240 V, 50/60 Hz (Other models)
DIN power output (rated): 56 + 56 W (4 ohms at 1 kHz, DIN)
Continuous RMS power output (reference): 70 + 70 W (4 ohms at 1 kHz, 10% THD)
Inputs
AUDIO IN: Sensitivity 250 mV, impedance of 47 kilohms
Outputs
PHONES (stereo mini jack): accepts headphones with an impedance of 8 ohms or more
SPEAKER: accepts impedance of 4 ohms

CD player section
System: Compact disc and digital audio system
Laser Diode Properties
Emission Duration: Continuous
Laser Output*: Less than 44.6 µW
* This output is the value measurement at a distance of 200 mm from the objective lens surface on the Optical Pick-up Block with 7 mm aperture.
Frequency response: 20 Hz – 20 kHz (±2 dB)
Wavelength: 780 – 790 nm

Tuner section
FM stereo, FM/AM superheterodyne tuner
FM tuner section:
Tuning range: 87.5 – 108.0 MHz
Antenna: FM lead antenna
Antenna terminals: 75 ohms unbalanced
Intermediate frequency: 10.7 MHz
AM tuner section:
Tuning range
Pan American model: 530 – 1,710 kHz (with 10 kHz tuning interval)
531 – 1,710 kHz (with 9 kHz tuning interval)
Other models: 530 – 1,710 kHz (with 10 kHz tuning interval)
531 – 1,602 kHz (with 9 kHz tuning interval)
Antenna: AM loop antenna
Antenna terminals: External antenna terminal
Intermediate frequency: 450 kHz

General
Power requirements
North American model: 120V AC, 60 Hz
Mexican model: 127 V AC, 60 Hz
Singapore, Argentina and Australian models: 220 V – 240 V AC, 50/60 Hz
Other models: 120 – 127 V or 220 – 240 V AC, 50/60 Hz
Adjustable with voltage selector
Power consumption: 45 watts (HPR90)
50 watts (HPR99XM)

Dimensions (w/h/d) (excl. speakers): Approx. 180 × 280 × 360 mm
Mass (excl. speakers): 3.9 kg (HPR90)
4.0 kg (HPR99XM)

Design and specifications are subject to change without notice.

COMPACT DISC RECEIVER

9-887-115-03
2007A05-1
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Sony Corporation
Personal Audio Division
Published by Sony Techno Create Corporation

SONY®

Notes on chip component replacement

- Never reuse a disconnected chip component.
- Notice that the minus side of a tantalum capacitor may be damaged by heat.

Flexible Circuit Board Repairing

- Keep the temperature of the soldering iron around 270 ˚C during repairing.
- Do not touch the soldering iron on the same conductor of the circuit board (within 3 times).
- Be careful not to apply force on the conductor when soldering or unsoldering.

CAUTION
Use of controls or adjustments or performance of procedures other than those specified herein may result in hazardous radiation exposure.

SAFETY CHECK-OUT

After correcting the original service problem, perform the following safety check before releasing the set to the customer:
Check the antenna terminals, metal trim, “metallized” knobs, screws, and all other exposed metal parts for AC leakage.
Check leakage as described below.

LEAKAGE TEST

The AC leakage from any exposed metal part to earth ground and from all exposed metal parts to any exposed metal part having a return to chassis, must not exceed 0.5 mA (500 microamperes.). Leakage current can be measured by any one of three methods.

1. A commercial leakage tester, such as the Simpson 229 or RCA WT-540A. Follow the manufacturers’ instructions to use these instruments.
2. A battery-operated AC milliammeter. The Data Precision 245 digital multimeter is suitable for this job.
3. Measuring the voltage drop across a resistor by means of a VOM or battery-operated AC voltmeter. The “limit” indication is 0.75 V, so analog meters must have an accurate low-voltage scale. The Simpson 250 and Sanwa SH-63Trd are examples of a passive VOM that is suitable. Nearly all battery operated digital multimeters that have a 2 V AC range are suitable. (See Fig. A)

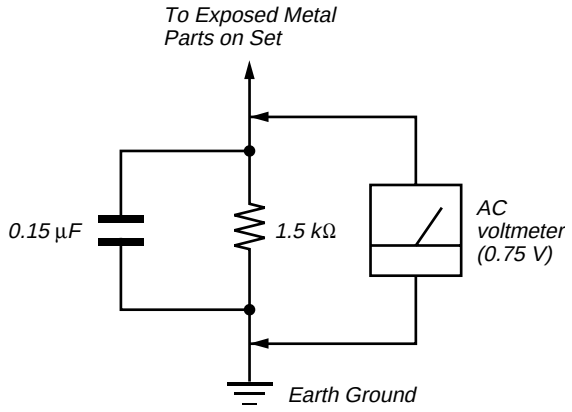

Fig. A. Using an AC voltmeter to check AC leakage.

ATTENTION AU COMPOSANT AYANT RAPPORT À LA SÉCURITÉ!

LES COMPOSANTS IDENTIFIÉS PAR UNE MARQUE ⚠ SUR LES DIAGRAMMES SCHÉMATIQUES ET LA LISTE DES PIÈCES SONT CRITIQUES POUR LA SÉCURITÉ DE FONCTIONNEMENT. NE REMPLACER CES COM- POSANTS QUE PAR DES PIÈCES SONY DONT LES NUMÉROS SONT DONNÉS DANS CE MANUEL OU DANS LES SUPPLÉMENTS PUBLIÉS PAR SONY.

SAFETY-RELATED COMPONENT WARNING!!

COMPONENTS IDENTIFIED BY MARK ⚠ OR DOTTED LINE WITH MARK ⚠ ON THE SCHEMATIC DIAGRAMS AND IN THE PARTS LIST ARE CRITICAL TO SAFE OPERATION. REPLACE THESE COMPONENTS WITH SONY PARTS WHOSE PART NUMBERS APPEAR AS SHOWN IN THIS MANUAL OR IN SUPPLEMENTS PUBLISHED BY SONY.

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SECTION 1
SERVICING NOTES

NOTES ON HANDLING THE OPTICAL PICK-UP BLOCK OR BASE UNIT

The laser diode in the optical pick-up block may suffer electrostatic break-down because of the potential difference generated by the charged electrostatic load, etc. on clothing and the human body.
During repair, pay attention to electrostatic break-down and also use the procedure in the printed matter which is included in the repair parts.
The flexible board is easily damaged and should be handled with care.

NOTES ON LASER DIODE EMISSION CHECK

The laser beam on this model is concentrated so as to be focused on the disc reflective surface by the objective lens in the optical pick-up block. Therefore, when checking the laser diode emission, observe from more than 30 cm away from the objective lens.

UNLEADED SOLDER

Boards requiring use of unleaded solder are printed with the lead-free mark (LF) indicating the solder contains no lead.
(Caution: Some printed circuit boards may not come printed with the lead free mark due to their particular size)

: LEAD FREE MARK

Unleaded solder has the following characteristics.

- Unleaded solder melts at a temperature about 40 °C higher than ordinary solder.
  Ordinary soldering irons can be used but the iron tip has to be applied to the solder joint for a slightly longer time.
  Soldering irons using a temperature regulator should be set to about 350 °C.
  Caution: The printed pattern (copper foil) may peel away if the heated tip is applied for too long, so be careful!
- Strong viscosity
  Unleaded solder is more viscou-s (sticky, less prone to flow) than ordinary solder so use caution not to let solder bridges occur such as on IC pins, etc.
- Usable with ordinary solder
  It is best to use only unleaded solder but unleaded solder may also be added to ordinary solder.

RELEASING THE ANTITHEFT LOCK

The disc table lock function for the antitheft of an demonstration disc in the store is equipped.

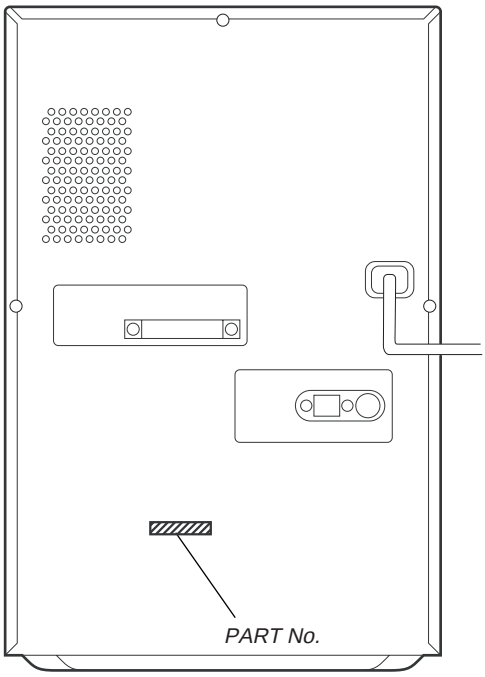
Releasing Procedure :

1. Press the I/⏻ button to turn the power on.
2. While pressing the ■ button, press the ⏏ button until "UNLOCKED" displayed on the fluorescent indicator tube (around 5 seconds).

Note: When "LOCKED" is displayed, the antitheft lock is not released by turning power on/off with the I/⏻ button.

MODEL IDENTIFICATION

— Rear Panel —



MODEL	PART No.
HPR90: US	2-670-257-0□
HPR90: CND	2-670-257-1□
HPR90: E	2-670-257-2□
HPR90: MX	2-670-257-3□
HPR90: E51	2-670-257-4□
HPR90: AR	2-670-257-5□
HPR90: SP	2-670-257-6□
HPR90: AUS	2-670-257-7□
HPR99XM: US	2-670-258-0□
HPR99XM: CND	2-670-258-1□

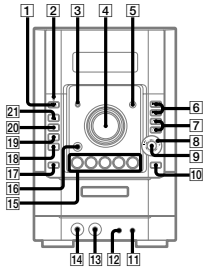
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  CND : Canadian model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  SP : Singapore model

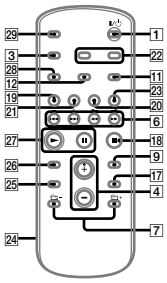
SECTION 2
GENERAL

This section is extracted from instruction manual.

– HPR90 –

Basic Operations

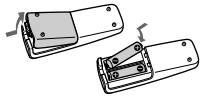




Before using the system

To use the remote

Slide and remove the battery compartment lid 24, and insert the two supplied R6 (size AA) batteries, ⊖ side first, matching the polarities shown below.



Notes on using the remote

- With normal use, the batteries should last for about six months.
- Do not mix an old battery with a new one or mix different types of batteries.
- If you do not use the remote for a long period of time, remove the batteries to avoid damage from battery leakage and corrosion.

To set the clock

1 Turn on the system.
Press I/⏻ (power) 1.

2 Select the clock set mode.
Press CLOCK/TIMER SET 22 on the remote. If the current mode appears on the display, press I◀◀ / ▶▶I 6 on the remote repeatedly to select "CLOCK SET" and then press ENTER 9 on the remote.

3 Set the time.
Press I◀◀ / ▶▶I 6 on the remote repeatedly to set the hour, and then press ENTER 9 on the remote. Use the same procedure to set the minute.
When you turn off the system after setting the clock, the clock display appears instead of the demonstration display.
The clock settings are lost when you disconnect the power cord or if a power failure occurs.

Selecting a music source

Press the following buttons (or press FUNCTION 23 on the remote repeatedly).

To select	Press
CD	CD 21 on the remote.
Tuner	TUNER/BAND 20.
Component (connected using an audio cord)	AUDIO IN 19.

Adjusting the sound

To adjust the volume

Press VOLUME +/– on the remote (or turn the VOLUME control on the unit) 4.

To add a sound effect

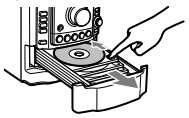
To	Press
Generate a more dynamic sound (Dynamic Sound Generator X-tra)	DSGX 16 on the unit.
Set the sound effect	EQ 25 on the remote repeatedly to select "BASS" or "TREBLE," and then press +/– 6 on the remote repeatedly to adjust the level.

Playing a CD/MP3 disc

1 Select the CD function.
Press CD 21 on the remote.

2 Place a disc.
Press ≜ (CD open/close) 10 on the unit, and place a disc with the label side up on the disc tray.

To insert additional discs, slide the disc tray with your finger as shown below.



To close the disc tray, press ≜ (CD open/close) 10 on the unit again.
Do not force the disc tray closed with your finger, as this may damage the unit.

3 Start playback.
Press ► (play) 27 on the remote (or CD/▶II (play/pause) 21 on the unit).

To	Press
Pause playback	II (pause) 27 on the remote (or CD/▶II (play/pause) 21 on the unit). To resume play, press the button again.
Stop playback	■ (stop) 18.
Select a folder on an MP3 disc	🗀 +/– (select folder) 7. Or turn the jog dial 8 on the unit and press PUSH ENTER 9 on the unit (turn the jog dial 8 on the unit during playback until "GROUP" appears, and then press PUSH ENTER 9 on the unit to select the desired folder).
Select a track or file	I◀◀ / ▶▶I (go back/go forward) 6. Or turn the jog dial 8 on the unit and press PUSH ENTER 9 on the unit. To cancel, press CANCEL 18 on the unit.
Find a point in a track or file	Hold down ◀◀ / ▶▶ (rewind/fast forward) 6 during playback, and release the button at the desired point.
Select Repeat Play	REPEAT 11 repeatedly until "REP" or "REP1" appears.
Select a disc	DISC SKIP 17 on the remote (or DISC 1 – 5 15 or DISC SKIP 17 (in stop mode) on the unit).
Switch to CD function from another source	DISC 1 – 5 15 on the unit (Automatic Source Selection).
Exchange other discs while playing	EX-CHANGE 17 on the unit.

To change the play mode

Press PLAY MODE 12 repeatedly while the player is stopped. You can select normal play ("ALL DISCS" for all discs, "1DISC" for a disc, or "🗀*" for all MP3 files in the folder on the disc), shuffle play ("ALL DISCS SHUF," "1DISC SHUF," or "🗀 SHUF*"), or program play ("PGM").

* When playing a CD-DA disc, 🗀 (SHUF) Play performs the same operation as 1DISC (SHUF) Play.

Note on the jog dial

Only the first 6 characters are displayed when performing the folder search, track search, or file search.

Notes on Repeat Play

- All tracks or files on a disc are played repeatedly up to five times.
- You cannot select "REP" and "ALL DISCS SHUF" at the same time.
- "REP 1" indicates that a single track or file is repeated until you stop it.

Notes on playing MP3 discs

- Do not save other types of files or unnecessary folders on a disc that has MP3 files.
- Folders that have no MP3 files are skipped.
- MP3 files are played back in the order that they are recorded onto the disc.
- The system can only play MP3 files that have a file extension of ".MP3."
- If there are files on the disc that have the ".MP3" file extension, but that are not MP3 files, the unit may produce noise or may malfunction.
- The maximum number of:
  – folders is 255 (including the root folder).
  – MP3 files is 511.
  – MP3 files and folders that can be contained on a single disc is 512.
  – folder levels (the tree structure of files) is 8.
- Compatibility with all MP3 encoding/writing software, recording device, and recording media cannot be guaranteed. Incompatible MP3 discs may produce noise or interrupted audio or may not play at all.

Notes on playing multisession discs

- If the disc begins with a CD-DA (or MP3) session, it is recognized as a CD-DA (or MP3) disc, and other sessions are not played back.
- A disc with a mixed CD format is recognized as a CD-DA (audio) disc.

Listening to the radio

1 Select "FM" or "AM."
Press TUNER/BAND 20 repeatedly.

2 Select the tuning mode.
Press TUNING MODE 12 repeatedly until "AUTO" appears.

3 Tune in the desired station.
Press +/– on the remote (or TUNING +/– on the unit) 6. Scanning stops automatically when a station is tuned in, and then "TUNED" and "STEREO" (for stereo programs) appear.

To stop automatic scanning

Press ■ (stop) 18.

To tune in a station with a weak signal

If "TUNED" does not appear and the scanning does not stop, press TUNING MODE 12 repeatedly until "AUTO" and "PRESET" disappear, and then press +/– on the remote (or TUNING +/– on the unit) 6 repeatedly to tune in the desired station.

To reduce static noise on a weak FM stereo station

Press FM MODE 11 repeatedly until "MONO" appears to turn off stereo reception.

Changing the display

To change	Press
Information on the display*	DISPLAY 3 repeatedly when the system is on.
Display mode (See below.)	DISPLAY 3 repeatedly when the system is off.

* For example, you can view CD/MP3 disc information, such as the track or file number or folder name during normal play, or the total play time while the player is stopped.

The system offers the following display modes.

Display mode	When the system is off,[1]
Demonstration	The clock display is replaced by lighting and flashing of the display window.
Clock	The clock is displayed.
Power Saving Mode[2]	The display is turned off to conserve power. The timer and clock continue to operate.

[1] The STANDBY indicator lights up when the system is off.
[2] When the system is in Power Saving Mode, the following functions are unavailable:
– setting the clock
– changing the AM tuning interval
– changing the CD power manage function

Notes on the display information

- The following are not displayed;
  – total playing time for a CD-DA disc depending on the play mode.
  – total playing time for an MP3 disc.
  – remaining playing time for an MP3 file.
- The following are not displayed correctly;
  – elapsed playing time of an MP3 file encoded using a VBR (variable bit rate).
  – folder and file names that do not follow either the ISO9660 Level 1, Level 2 or Joliet in the expansion format.
- The following are displayed;
  – ID3 tag information for MP3 files when ID3 version 1 and version 2 tags are used.
  – up to 62 characters of ID3 tag information using uppercase letters (A to Z), numbers (0 to 9), and symbols (" $ % ' ( ) * + , – . / < = > @ [\ ] _ ` { | } ? ^).

Using optional audio components

To connect an optional headphones

Connect headphones to the PHONES jack 14 on the unit.

To connect an optional component

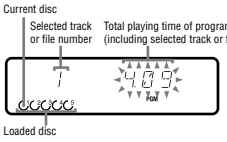
Connect additional audio component to the AUDIO IN jack 13 on the unit using an audio analog cord (not supplied). Turn down the volume on the system, and then press FUNCTION 23 on the remote repeatedly to select the AUDIO IN function.

Other Operations

Creating your own CD program (Program Play)

Use buttons on the remote to create your own program.

1 Press CD 21 to select the CD function.
2 Press PLAY MODE 12 repeatedly until "PGM" appears while the player is stopped.
3 Press DISC SKIP 17 to select a disc.
4 Press I◀◀ / ▶▶I 6 repeatedly or turn the jog dial 8 on the unit until the desired track number appears.
When programming MP3 files, press 🗀 +/– (select folder) 7 repeatedly or turn the jog dial 8 on the unit to select the desired folder, and then select the desired file.



5 Press ENTER 9 to add the track or file to the program.
"– –.– –" appears when the total time exceeds 100 minutes for a CD, or when you select a CD track whose number is 21 or over, or when you select an MP3 file.
6 Repeat steps 4 through 5 to program additional tracks or files, up to a total of 25 tracks or files.
7 To play your program of tracks or files, press ► (play) 27.
The program remains available until you open the disc tray. To play the same program again, select the CD function, and press ► (play) 27.

To cancel Program Play

Press PLAY MODE 12 repeatedly until "PGM" disappears while the player is stopped.

To delete the last track or file of the program

Press CLEAR 26 while the player is stopped.

To view program information, such as total track number of the program

Press DISPLAY 3 repeatedly.

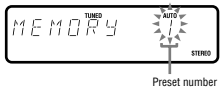
Tip

You can program additional tracks or files during playback by using the jog dial.

Presetting radio stations

You can preset your favorite radio stations and tune them in instantly by selecting the corresponding preset number.
Use buttons on the remote to preset stations.

1 Tune in the desired station (see "Listening to the radio").
2 Press TUNER MEMORY 28.



3 Press +/– 6 repeatedly to select your desired preset number.
If another station is already assigned to the selected preset number, the station is replaced by the new stations.
4 Press ENTER 9.
5 Repeat steps 1 through 4 to store other stations.
You can preset up to 20 FM and 10 AM stations. The preset stations are retained for about half a day even if you disconnect the power cord or if a power failure occurs.
6 To call up a preset radio station, press TUNING MODE 12 repeatedly until "PRESET" appears, and then press +/– 6 repeatedly to select the desired preset number.

Using the Timers

The system offers two timer functions. If you use Play Timer with the Sleep Timer, the Sleep Timer has priority.

Sleep Timer:
You can fall asleep to music. This function works even if the clock is not set.

Press SLEEP 29 on the remote repeatedly. If you select "AUTO," the system automatically turns off after the current disc stops or in 100 minutes.

Play Timer:
You can wake up to CD or tuner at a preset time.

Use buttons on the remote to control the Play Timer. Make sure you have set the clock.

1 Prepare the sound source.
Prepare the sound source, and then press VOLUME +/– 4 to adjust the volume.
To start from a specific CD track or MP3 file, create your own CD program.
2 Press CLOCK/TIMER SET 22.
3 Press I◀◀ / ▶▶I 6 repeatedly to select "PLAY SET" then press ENTER 9.
"ON" appears, and the hour indication flashes.
4 Set the time to start playing.
Press I◀◀ / ▶▶I 6 repeatedly to set the hour, and then press ENTER 9.
The minute indication flashes. Use the procedure above to set the minute.
5 Use the same procedure as in step 4 to set the time to stop playing.
6 Select the sound source.
Press I◀◀ / ▶▶I 6 repeatedly until the desired sound source appears, and then press ENTER 9. The display shows the timer settings.
7 Press I/⏻ (power) 1 to turn off the system.
The system turns on 15 seconds before the preset time.
If the system is on at the preset time, the Play Timer will not play.

To activate or check the timer again

Press CLOCK/TIMER SELECT 22, press I◀◀ / ▶▶I 6 repeatedly until "PLAY SEL" appears, and then press ENTER 9.

To cancel the timer

Repeat the same procedure as above until "TIMER OFF" appears, and then press ENTER 9.

To change the setting

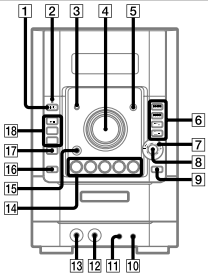
Start over from step 1.

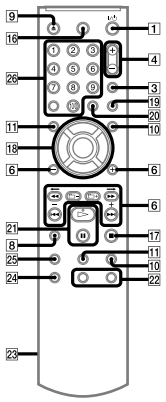
Tip

The Play Timer setting remains as long as the setting is not canceled manually.

– HPR99XM –

Basic Operations

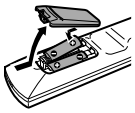




Before using the system

To use the remote

Slide and remove the battery compartment lid 23, and insert the two supplied R6 (size AA) batteries, ⊖ side first, matching the polarities shown below.



Notes on using the remote

- With normal use, the batteries should last for about six months.
- Do not mix an old battery with a new one or mix different types of batteries.
- If you do not use the remote for a long period of time, remove the batteries to avoid damage from battery leakage and corrosion.

To receive the XM Satellite Radio

Introducing XM Satellite Radio

XM Radio is the satellite radio service with millions of listeners across the U.S. Broadcasting live daily. XM Radio offers 160 digital radio channels offering music, news, sports, comedy, talk, entertainment, traffic and weather reports, with high quality digital sound.

How to Subscribe

XM $12.95 monthly service subscription sold separately. XM Connect and Play (TM) antenna required to receive XM service (sold separately). Installation costs and other fees and taxes, including a one-time activation fee may apply. Subscription fee is consumer only. All fees and programming subject to change. Channels with frequent explicit language are indicated with an XL. Channel blocking is available for XM radio receivers by calling 1-800-XMRADIO. Subscriptions subject to Customer Agreement available at xmradio.com. XM service only available in the 48 contiguous United States. XM Ready and XM Connect-and-Play are trademarks of XM Satellite Radio Inc. (C)2005 XM Satellite Radio Inc. All rights reserved.

Activate XM Service

Find the 8-character XM Radio ID of the Connect-and-Play antenna. With the Connect-and-Play antenna connected to the unit, the Radio ID can be found by selecting channel 0 on the radio. Press >10, 10/0, 10/0, 10/0 26 on the remote in that order to select channel 0. Record the Radio ID here for reference: _____ (NOTE: The XM Radio ID does not use the letters I, O, S, or F.) Activate your XM Satellite Radio service online at http://activate.xmradio.com or by calling 1-800-XMRADIO (1-800-967-2346). You will need a major credit card. XM will send a signal from the satellites to activate the full channel lineup. Activation normally takes 10 to 15 minutes, but during peak busy periods, you may need to keep your player on for up to an hour. When you can access the full channel lineup on your player, you're done.

Notes on XM Satellite Radio

- To ensure optimal reception of XM's satellite signal, move your antenna to various window locations around your home to see where the best reception will be received. Most XM customers place the antenna in a south-facing window with a clear view to the sky.
- Residents in Canada please see information about XM Canada at the following webpage: (http://www.xmradio.ca/)

To set the clock

1 Turn on the system.
Press I/⏻ (power) 1.

2 Select the clock set mode.
Press CLOCK/TIMER SET 22 on the remote. If the current mode appears on the display, press I◄◄/►►I 6 on the remote repeatedly to select "CLOCK SET" and then press ENTER 8 on the remote.

3 Set the time.
Press I◄◄/►►I 6 on the remote repeatedly to set the hour, and then press ENTER 8 on the remote.
Use the same procedure to set the minute.
When you turn off the system after setting the clock, the clock display appears instead of the demonstration display.
The clock settings are lost when you disconnect the power cord or if a power failure occurs.

Selecting a music source

Press the following buttons (or press FUNCTION 18 on the remote repeatedly).

To select	Press
CD	CD 18 on the remote.
Tuner	TUNER/BAND 18.
Component (connected using an audio cord)	AUDIO IN 18.

Adjusting the sound

To adjust the volume

Press VOLUME +/– on the remote (or turn the VOLUME control on the unit) 4.

To add a sound effect

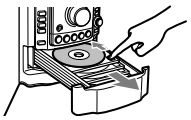
To	Press
Generate a more dynamic sound (Dynamic Sound Generator X-tra)	DSGX 15 on the unit.
Set the sound effect	EQ 19 on the remote repeatedly to select "BASS" or "TREBLE," and then press +/– 6 on the remote repeatedly to adjust the level.

Playing a CD/ATRAC/MP3 disc

1 Select the CD function.
Press CD 18 on the remote.

2 Place a disc.
Press ⏏ (CD open/close) 9 on the unit, and place a disc with the label side up on the disc tray.

To insert additional discs, slide the disc tray with your finger as shown below.



To close the disc tray, press ⏏ (CD open/close) 9 on the unit again.
Do not force the disc tray closed with your finger, as this may damage the unit.

3 Start playback.
Press ► (play) 21 on the remote (or CD/►II (play/pause) 18 on the unit).

To	Press
Pause playback	II (pause) 21 on the remote (or CD/►II (play/pause) 18 on the unit). To resume play, press the button again.
Stop playback	■ (stop) 17.
Select a folder on an "ATRAC" disc or MP3 disc	🗀 +/– (select folder) 6. Or turn the jog dial 7 on the unit and press PUSH ENTER 8 on the unit (turn the jog dial 7 on the unit during playback until "GROUP" appears, and then press PUSH ENTER 8 on the unit to select the desired folder).
Select a track or file	I◄◄/►►I (go back/go forward) 6. Or turn the jog dial 7 on the unit and press PUSH ENTER 8 on the unit. To cancel, press CANCEL 17 on the unit.
Find a point in a track or file	Hold down ◄◄/►► (rewind/fast forward) 6 during playback, and release the button at the desired point.
Select Repeat Play	REPEAT 10 repeatedly until "REP" or "REP1" appears.
Select a disc	DISC SKIP 16 on the remote (or DISC 1 – 5 14 or DISC SKIP 16 (in stop mode) on the unit).
Switch to CD function from another source	DISC 1 – 5 14 on the unit (Automatic Source Selection).
Exchange other discs while playing	EX-CHANGE 16 on the unit.

To change the play mode

Press PLAY MODE 11 repeatedly while the player is stopped. You can select normal play ("ALL DISCS" for all discs, "1DISC" for a disc, or "🗀" for all "ATRAC" files and MP3 files in the folder on the disc), shuffle play ("ALL DISCS SHUF," "1DISC SHUF," or "🗀 SHUF"*), or program play ("PGM").
* When playing a CD-DA disc, 🗀 (SHUF) Play performs the same operation as 1DISC (SHUF) Play.

To select a CD track using the number buttons

Press the number buttons 26 on the remote during normal play. For example, to enter 20, press >10, 2, 10/0, in that order.

To create an "ATRAC"/MP3 disc

You can create an "ATRAC" disc and MP3 disc with the SonicStage software. SonicStage can be downloaded free of charge from the following sites and installed on your computer.
For customers in the U.S.A.:
<http://www.sony.com/shelfsupport>
For customers in Canada:
<http://www.sony.ca/ElectronicsSupport/>
Please see the instructions at the sites or SonicStage Help of the software for how to install and how to create an "ATRAC"/MP3 disc.

Note on the jog dial

Only the first 6 characters are displayed when performing the folder search, track search, or file search.

Notes on Repeat Play

- All tracks or files on a disc are played repeatedly up to five times.
- You cannot select "REP" and "ALL DISCS SHUF" at the same time.
- "REP 1" indicates that a single track or file is repeated until you stop it.

Notes on playing MP3 discs

- Do not save other types of files or unnecessary folders on a disc that has "ATRAC" and MP3 files.
- Folders that have no "ATRAC" and MP3 files are skipped.
- "ATRAC" and MP3 files are played back in the order that they are recorded onto the disc.
- The system can only play MP3 files that have a file extension of ".MP3."
- If there are files on the disc that have the ".MP3" file extension, but that are not MP3 files, the unit may produce noise or may malfunction.
- The maximum number of:
  – "ATRAC" folders is 255.
  – "ATRAC" files is 999.
  – MP3 folders is 255 (including the root folder).
  – MP3 files is 511.
  – MP3 files and folders that can be contained on a single disc is 512.
  – folder levels (the tree structure of files) is 8.
- Compatibility with all MP3 encoding/writing software, recording device, and recording media cannot be guaranteed. Incompatible MP3 discs may produce noise or interrupted audio or may not play at all.
- If "ATRAC" files and MP3 files are recorded on the same disc, this system plays the "ATRAC" files first.

Notes on playing multisession discs

- If the disc begins with a CD-DA (or "ATRAC"/MP3) session, it is recognized as a CD-DA (or "ATRAC"/MP3) disc, and other sessions are not played back.
- A disc with a mixed CD format is recognized as a CD-DA (audio) disc.

Listening to the radio

To listen to FM or AM

1 Select "FM" or "AM."
Press TUNER/BAND 18 repeatedly.

2 Select the tuning mode.
Press TUNING MODE 11 repeatedly until "AUTO" appears.

3 Tune in the desired station.
Press +/– on the remote (or TUNING +/– on the unit) 6. Scanning stops automatically when a station is tuned in, and then "TUNED" and "STEREO" (for stereo programs) appear.

To stop automatic scanning

Press ■ (stop) 17.

To tune in a station with a weak signal

If "TUNED" does not appear and the scanning does not stop, press TUNING MODE 11 repeatedly until "AUTO" and "PRESET" disappear, and then press +/– on the remote (or TUNING +/– on the unit) 6 repeatedly to tune in the desired station.

To reduce static noise on a weak FM stereo station

Press FM MODE 10 repeatedly until "MONO" appears to turn off stereo reception.

To listen to XM

You can operate and listen to the XM satellite Radio by connecting your XM Connect-and-Play antenna. Before using the system, connect the XM Connect-and-Play antenna to the XM jack of the system (see "Hooking up the system securely").

1 Select "XM."
Press XM on the remote (or TUNER/BAND repeatedly) 18.

2 Select the All Channel mode.
Press TUNING MODE 11 repeatedly until "CAT" and "PRESET" disappear.

3 Tune in the desired channel.
Press +/– on the remote (or TUNING+/– on the unit) 6 repeatedly.

To select a channel by Category mode

1 Press XM on the remote (or TUNER/BAND repeatedly) 18.

2 Press TUNING MODE 11 repeatedly until "CAT" appears.

3 Press CATEGORY +/– on the remote (or CAT +/– on the unit) 6 repeatedly.

4 Press +/– on the remote (or TUNING +/– on the unit) 6 repeatedly.

To select a channel using the number buttons

Press the number buttons 26 on the remote. For example, to enter 20, press >10, 10/0, 2, 10/0, in that order. You cannot enter 255 or more.

Notes

- If you select a channel that is not broadcasted, "OFF AIR" appears and the previous channel is selected.
- If you select a channel using the number buttons in Category mode, the tuning mode changes to All Channel mode automatically.

Changing the display

To change	Press
Information on the display*	DISPLAY 3 repeatedly when the system is on.
Display mode (See below.)	DISPLAY 3 repeatedly when the system is off.

* For example, you can view CD/"ATRAC"/MP3 disc information, such as the track or file number or folder name during normal play, or the total play time while the player is stopped. You can also view XM radio information, such as the channel name, song title and artist name.

The system offers the following display modes.

Display mode	When the system is off,1)
Demonstration	The clock display is replaced by lighting and flashing of the display window.
Clock	The clock is displayed.
Power Saving Mode2)	The display is turned off to conserve power. The timer and clock continue to operate.

1) The STANDBY indicator lights up when the system is off.
2) When the system is in Power Saving Mode, the following functions are unavailable:
– setting the clock
– changing the AM tuning interval
– changing the CD power manage function

Notes on the display information

- The following are not displayed;
  – total playing time for a CD-DA disc depending on the play mode.
  – total playing time for an "ATRAC"/MP3 disc.
  – remaining playing time for an MP3 file.
- The following are not displayed correctly;
  – elapsed playing time of an "ATRAC" file or MP3 file encoded using a VBR (variable bit rate).
  – folder and file names that do not follow either the ISO9660 Level 1, Level 2 or Joliet in the expansion format.
- The following are displayed;
  – ID3 tag information for "ATRAC" files and MP3 files when ID3 version 1 and version 2 tags are used.
  – up to 62 characters of ID3 tag information using uppercase letters (A to Z), numbers (0 to 9), and symbols (" $ % ' ( ) * + , – . / < = > @ [\ ] _ ` { | } ! ? ^).

Using optional audio components

To connect an optional headphones

Connect headphones to the PHONES jack 13 on the unit.

To connect an optional component

Connect additional audio component to the AUDIO IN jack 12 on the unit using an audio analog cord (not supplied). Turn down the volume on the system, and then press FUNCTION 18 on the remote repeatedly to select the AUDIO IN function.

Other Operations

Creating your own CD program (Program Play)

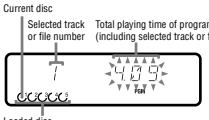
Use buttons on the remote to create your own program.

1 Press CD 18 to select the CD function.

2 Press PLAY MODE 11 repeatedly until "PGM" appears while the player is stopped.

3 Press DISC SKIP 16 to select a disc.

4 Press I◄◄/►►I 6 repeatedly or turn the jog dial 7 on the unit until the desired track number appears.
When programming "ATRAC" files or MP3 files, press 🗀 +/– (select folder) 6 repeatedly or turn the jog dial 7 on the unit to select the desired folder, and then select the desired file.



5 Press ENTER 8 to add the track or file to the program.
"– – .– –" appears when the total time exceeds 100 minutes for a CD, or when you select a CD track whose number is 21 or over, or when you select an "ATRAC" file or MP3 file.

6 Repeat steps 4 through 5 to program additional tracks or files, up to a total of 25 tracks or files.

7 To play your program of tracks or files, press ► (play) 21.
The program remains available until you open the disc tray. To play the same program again, select the CD function, and press ► (play) 21.

To cancel Program Play

Press PLAY MODE 11 repeatedly until "PGM" disappears while the player is stopped.

To delete the last track or file of the program

Press CLEAR 20 while the player is stopped.

To view program information, such as total track number of the program

Press DISPLAY 3 repeatedly.

Tip

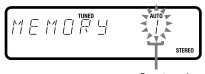
You can program additional tracks or files during playback by using the jog dial.

Presetting radio stations

You can preset your favorite radio stations and tune them in instantly by selecting the corresponding preset number.
Use buttons on the remote to preset stations.

1 Tune in the desired station (see "Listening to the radio").

2 Press TUNER MEMORY 25.



3 Press +/– 6 repeatedly to select your desired preset number.
If another station is already assigned to the selected preset number, the station is replaced by the new stations.

4 Press ENTER 8.

5 Repeat steps 1 through 4 to store other stations.
You can preset up to 20 FM, 10 AM and 20 XM stations. The preset stations are retained for about half a day even if you disconnect the power cord or if a power failure occurs.

6 To call up a preset radio station, press TUNING MODE 11 repeatedly until "PRESET" appears, and then press +/– 6 repeatedly to select the desired preset number.

Note on presetting XM stations

You cannot preset XM stations except when you receive the station.

Using the Timers

The system offers two timer functions. If you use Play Timer with the Sleep Timer, the Sleep Timer has priority.

Sleep Timer:

You can fall asleep to music. This function works even if the clock is not set.

Press SLEEP 24 on the remote repeatedly. If you select "AUTO," the system automatically turns off after the current disc stops or in 100 minutes.

Play Timer:

You can wake up to CD or tuner at a preset time.

Use buttons on the remote to control the Play Timer. Make sure you have set the clock.

1 Prepare the sound source.
Prepare the sound source, and then press VOLUME +/– 4 to adjust the volume.
To start from a specific CD track, "ATRAC" file or MP3 file, create your own CD program.

2 Press CLOCK/TIMER SET 22.

3 Press I◄◄/►►I 6 repeatedly to select "PLAY SET" then press ENTER 8.
"ON" appears, and the hour indication flashes.

4 Set the time to start playing.
Press I◄◄/►►I 6 repeatedly to set the hour, and then press ENTER 8.
The minute indication flashes. Use the procedure above to set the minute.

5 Use the same procedure as in step 4 to set the time to stop playing.

6 Select the sound source.
Press I◄◄/►►I 6 repeatedly until the desired sound source appears, and then press ENTER 8. The display shows the timer settings.

7 Press I/⏻ (power) 1 to turn off the system.
The system turns on 15 seconds before the preset time. If the system is on at the preset time, the Play Timer will not play.

To activate or check the timer again

Press CLOCK/TIMER SELECT 22, press I◄◄/►►I 6 repeatedly until "PLAY SEL" appears, and then press ENTER 8.

To cancel the timer

Repeat the same procedure as above until "TIMER OFF" appears, and then press ENTER 8.

To change the setting

Start over from step 1.

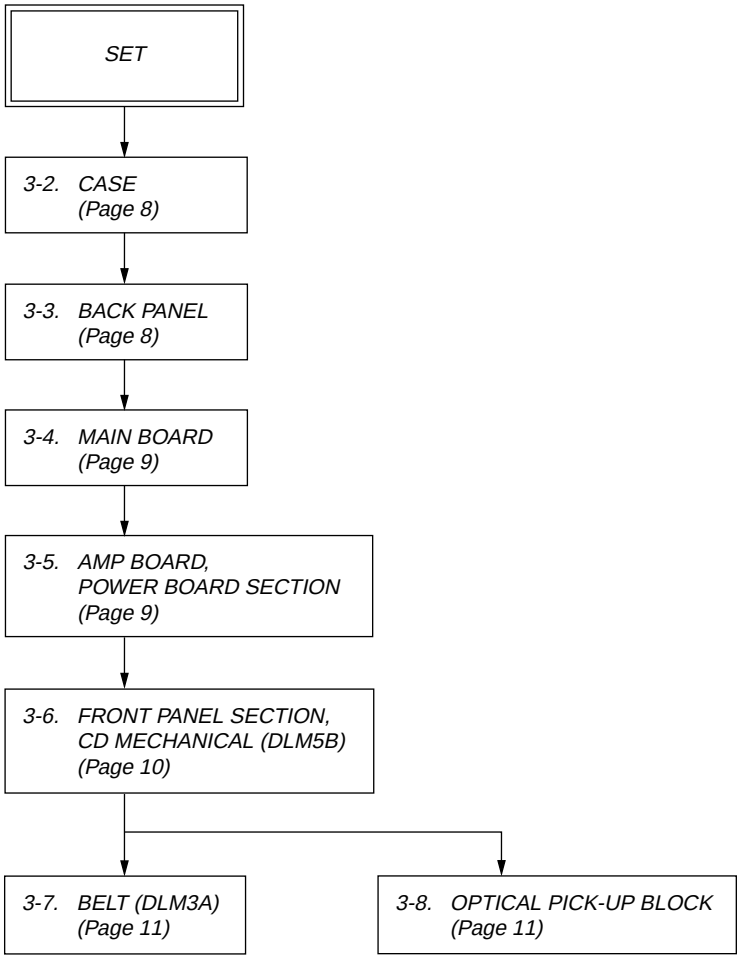
Tip

The Play Timer setting remains as long as the setting is not canceled manually.

SECTION 3
DISASSEMBLY

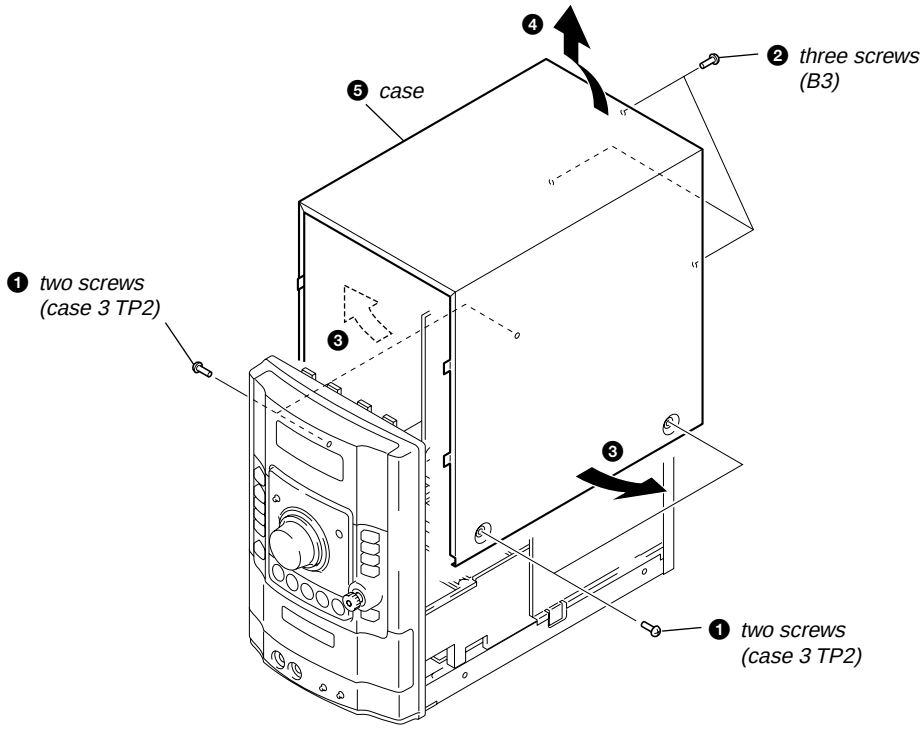
- This set can be disassembled in the order shown below.

3-1. DISASSEMBLY FLOW

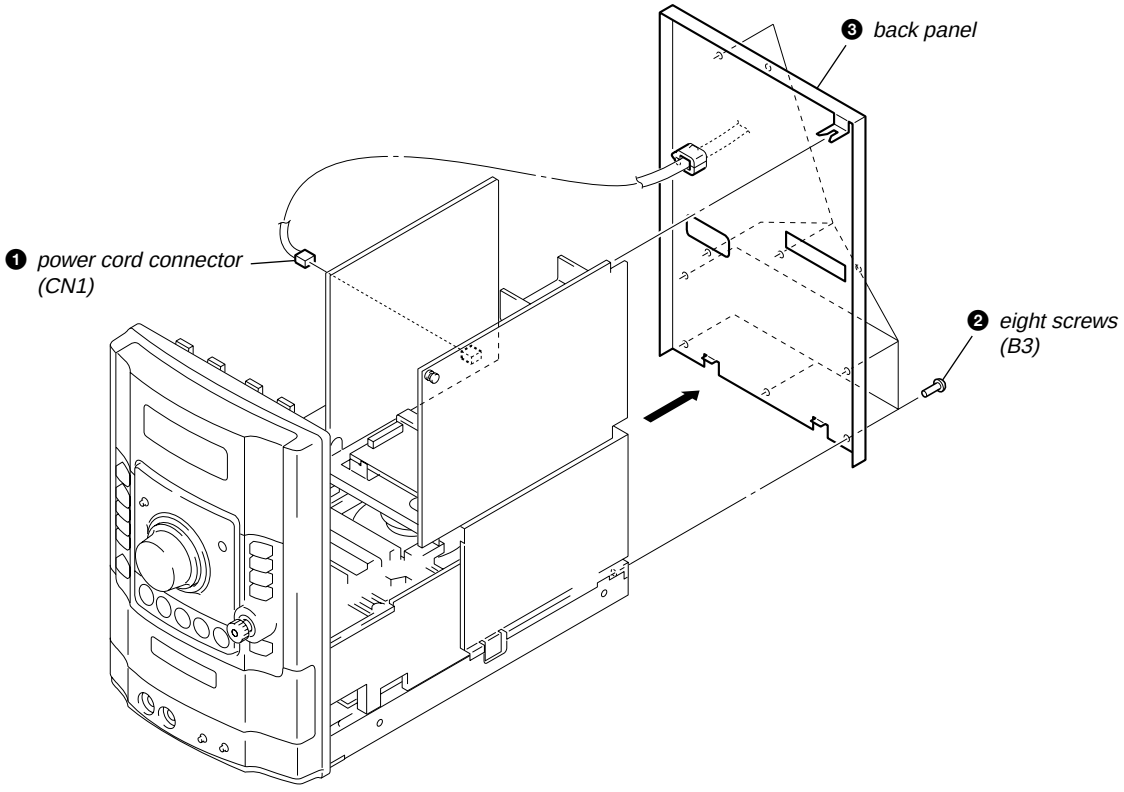


Note: Follow the disassembly procedure in the numerical order given.

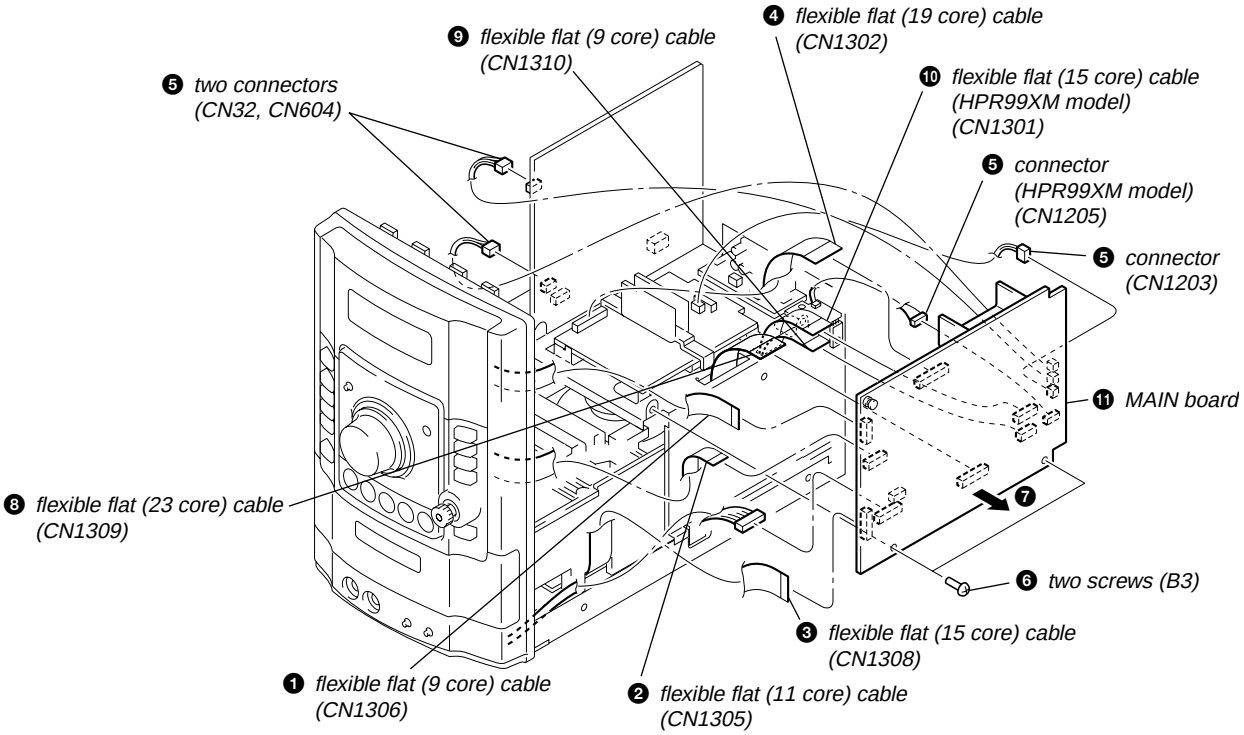
3-2. CASE



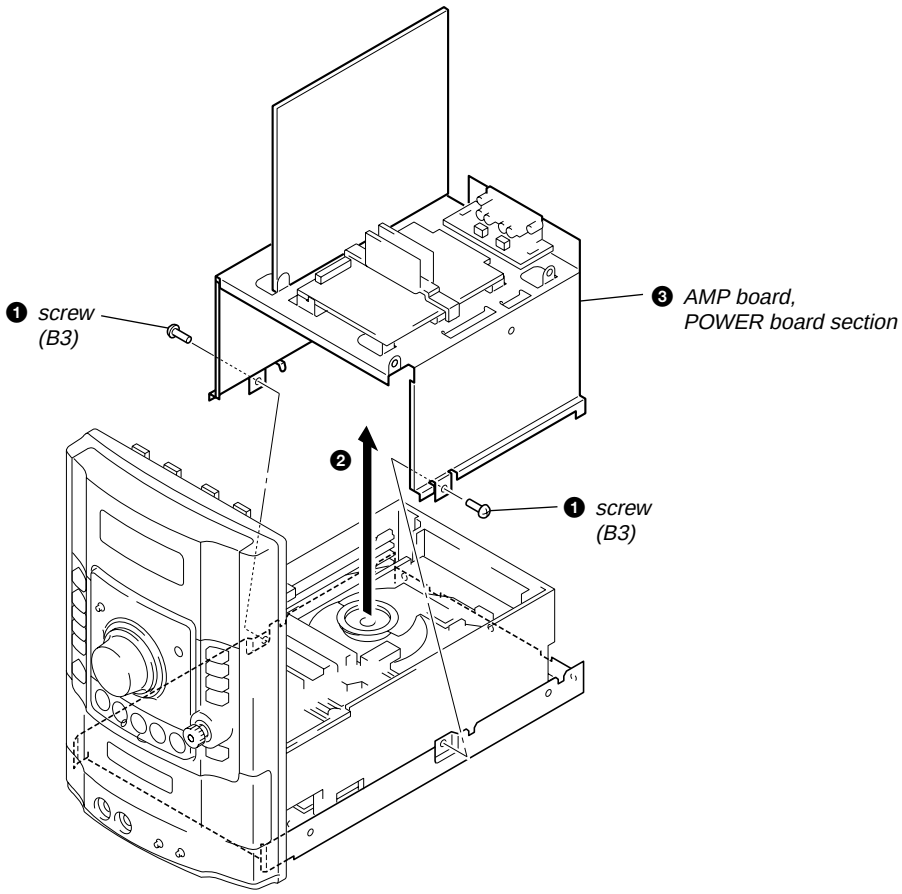
3-3. BACK PANEL



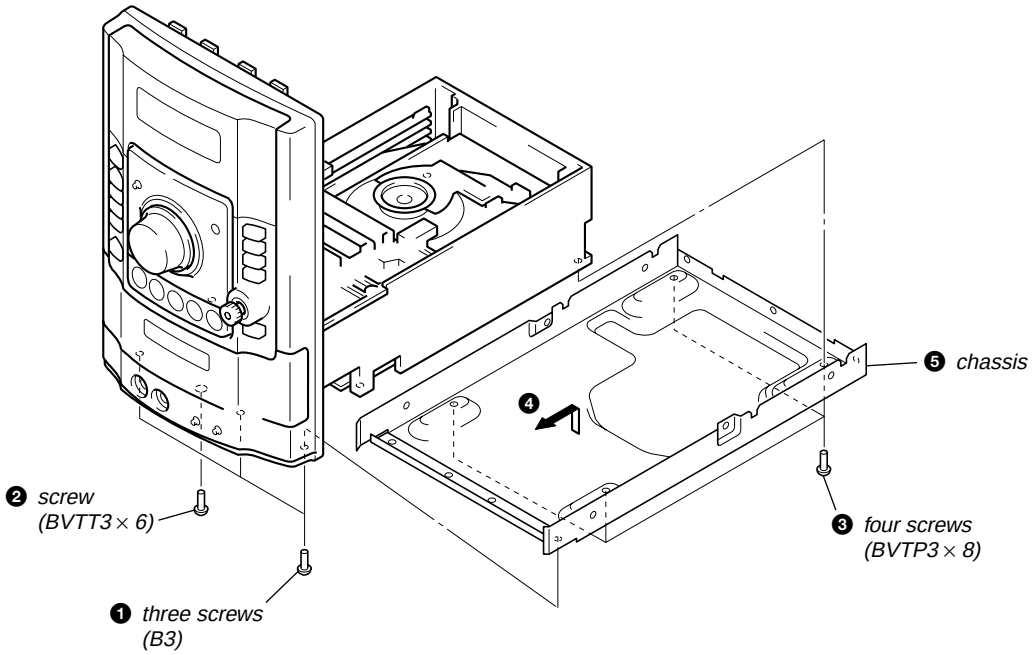
3-4. MAIN BOARD

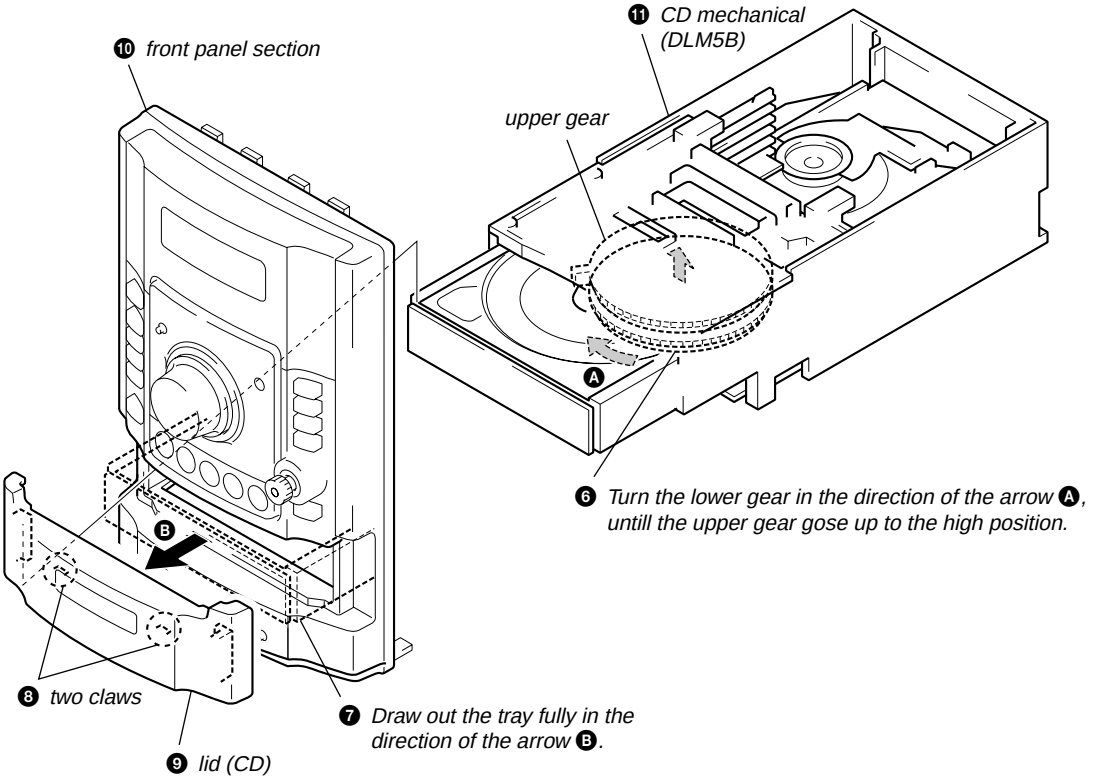

❹ flexible flat (19 core) cable (CN1302)
❾ flexible flat (9 core) cable (CN1310)
❺ two connectors (CN32, CN604)
❿ flexible flat (15 core) cable (HPR99XM model) (CN1301)
❺ connector (HPR99XM model) (CN1205)
❺ connector (CN1203)
⓫ MAIN board
❽ flexible flat (23 core) cable (CN1309)
❼
❻ two screws (B3)
❸ flexible flat (15 core) cable (CN1308)
❶ flexible flat (9 core) cable (CN1306)
❷ flexible flat (11 core) cable (CN1305)

3-5. AMP BOARD, POWER BOARD SECTION

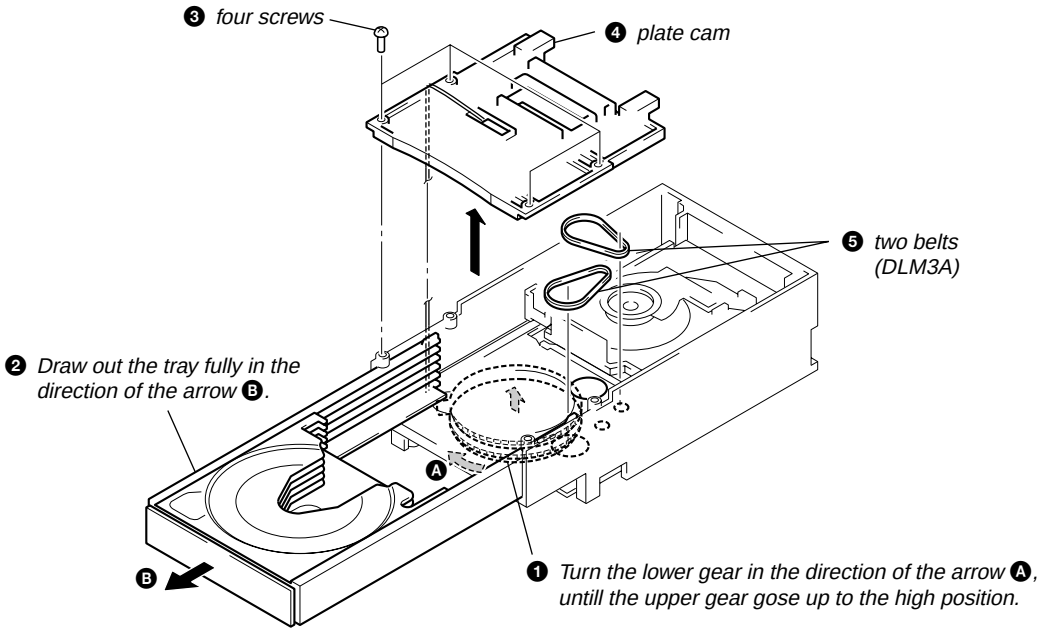


3-6. FRONT PANEL SECTION, CD MECHANICAL (DLM5B)

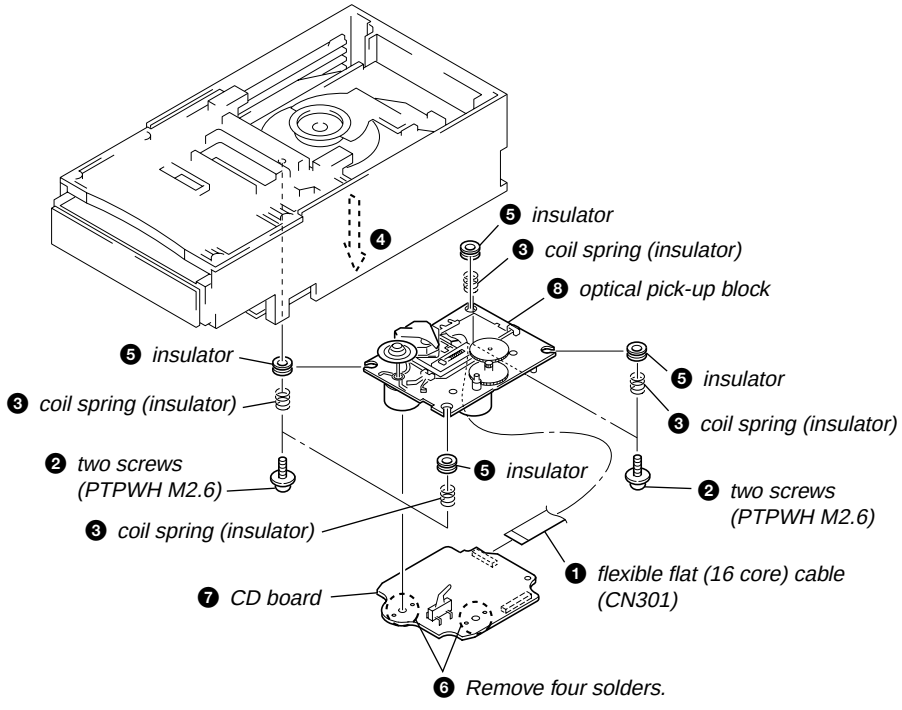



⓫ CD mechanical (DLM5B)
⓾ front panel section
upper gear
Ⓐ
❻ Turn the lower gear in the direction of the arrow Ⓐ, untill the upper gear gose up to the high position.
Ⓑ
❽ two claws
❼ Draw out the tray fully in the direction of the arrow Ⓑ.
❾ lid (CD)

3-7. BELT (DLM3A)


❸ four screws
❹ plate cam
❺ two belts (DLM3A)
❷ Draw out the tray fully in the direction of the arrow Ⓑ.
Ⓐ
Ⓑ
❶ Turn the lower gear in the direction of the arrow Ⓐ, untill the upper gear gose up to the high position.

3-8. OPTICAL PICK-UP BLOCK



SECTION 4
TEST MODE

COLD RESET

The cold reset clears all data including preset data stored in the RAM to initial conditions. Execute this mode when returning the set to the customer.

Procedure:

1. Press three buttons of [PLAY MODE/TUNING MODE], [DISPLAY] and [I/⏻] simultaneously.
2. The fluorescent indicator tube becomes blank momentarily, then becomes standby states.

COMMON TEST MODE

This mode is used to check operations of Amplifier.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press three buttons of [DSGX], [PLAY MODE/TUNING MODE] and [DISPLAY] simultaneously.
3. When the COMMON test mode is activated, "SLEEP" and "🕘 PLAY" blink on the fluorescent indicator tube.
4. Each time [EQ] button on the remote commander is pressed, the display changes starting "TONE MIN", "TONE FLAT" and "TONE MAX" this order.
5. Turn the [VOLUME] knob counterclockwise, "VOL MIN" is displayed on the fluorescent indicator tube. Turn the [VOLUME] knob clockwise, "VOL MAX" is displayed on the fluorescent indicator tube.
6. To release this mode, press the [I/⏻] button.

PANEL TEST MODE

This mode is used to check the fluorescent indicator tube, LED, model, destination, software version and key.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press three buttons of [PLAY MODE/TUNING MODE], [AUDIO IN] and [DISPLAY] simultaneously.
3. Fluorescent indicator tube is all turned on and each LED of [DSGX] and [STANDBY] blink every 0.5 seconds.
4. When you want to enter the model, destination and version display mode, press the [DISPLAY] button. The model and destination are displayed alternately on the fluorescent indicator tube.
5. Press the [DISPLAY] button again MC version display on the fluorescent indicator tube.
6. When [AUDIO IN] button is pressed while the MC version is displayed, year, month and day of the software creation display. When [AUDIO IN] button is pressed again, the display returns to the MC version display.
7. Press the [PUSH ENTER] button, the key check mode is activated.
8. In the key check mode, the fluorescent indicator tube displays "K 0 J0 V0".
9. Each time a button is pressed, "K" value increases. However, once a button is pressed, it is no longer taken into account. All keys are pressed, display becomes "K21".
10. "V" value increases 1, 2, 3 ... if turn the [VOLUME] knob clockwise, or it decreases 0, 9, 8 ... if turn the knob counterclockwise
    "J" value increases like 1, 2, 3 ... if turn the jog knob clockwise, or it decreases like 0, 9, 8 ... if turn the knob counterclockwise.
11. To release this mode, press three keys in the same manner as step 2, or disconnect the power cord.

CD SHIP MODE

This mode moves the optical pick-up to the position durable to vibration. Use this mode when returning the set to the customer after repair.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [CD] or [FUNCTION] key on the remote commander to select "CD".
3. Press two buttons of [■] and [DISC 1] simultaneously.
4. After the "STANDBY" display blinks, "LOCK" is displayed on the fluorescent indicator tube, and the ship mode is set.

CD SHIP MODE & MEMORY CLEAR

This mode is used to perform CD ship mode and cold reset simultaneously.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [CD] or [FUNCTION] key on the remote commander to select "CD".
3. Press three buttons of [DSGX], [⏏] and [DISC 1] simultaneously.
4. After the "STANDBY" display blinks, "LOCK" is displayed on the fluorescent indicator tube, and the ship mode is set.

ANTITHEFT LOCK MODE

This mode is used to unable to take sample disc out of disc table in the shop.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Insert the CD.
3. Press the [CD ▶II] button.
4. Press two buttons of [■] and [⏏] for 5 seconds.
5. The message "LOCKED" is displayed on the fluorescent indicator tube and the disc slot is locked. (Even if pressing the [⏏] button, the message "LOCKED" is displayed on the fluorescent indicator tube and the disc table is locked)
6. To release from this mode, press two buttons of [■] and [⏏] for 5 seconds.
7. The message "UNLOCKED" is displayed on the fluorescent indicator tube and the disc table is unlocked.

CD POWER MANAGE

This mode is used to changed over CD power on/off for decreasing of reception noise in the tuner mode.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [CD] or [FUNCTION] key on the remote commander to select "CD".
3. Press the [I/⏻] button again to turn the power off.
4. Press two buttons of [PUSH ENTER] and [I/⏻] simultaneously.
5. The message "CD POWER" is displayed on the fluorescent indicator tube momentarily, then display changes "ON" or "OFF", and CD power on/off changed over in the tuner mode.

CD SERVICE MODE

This mode can run the CD sled motor freely. Use this mode, for instance, when cleaning the optical pick-up.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [CD] or [FUNCTION] key on the remote commander to select "CD".
3. Press three buttons of [PUSH ENTER], [DSGX] and [DISC 1] simultaneously, the message "SERVICE IN" is displayed on the fluorescent indicator tube.
4. Press the [▶▶ ▷▷I] button to move the optical pick-up to outside track and the message "SLED OUT" is displayed on the fluorescent indicator tube, or press the [I◁◁ ◀◀] button to inside track and the message "SLED IN" is displayed on the fluorescent indicator tube.
5. Press the [■] button, "LD OFF" is displayed and laser diode is turned off. Each time [■] button is pressed, laser diode ON/OFF switch is performed.
6. To release this mode, press the [I/⏻] button.

TUNER STEP CHANGE-OVER

A step of AM tuning interval can be changed over between 9 kHz or 10 kHz.

Procedure:

1. Press the [I/⏻] button to turn the power on.
2. Press the [TUNER/BAND] button to select "AM".
3. Press the [I/⏻] button again to turn the power off.
4. Press two buttons of [▶▶ ▷▷I] and [I/⏻] simultaneously.
5. The message "STEP 9kHz" or "STEP 10kHz" is displayed on the fluorescent indicator tube and thus the tuning interval is changed over.

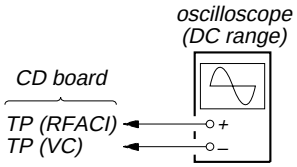
SECTION 5
ELECTRICAL CHECK

CD SECTION

Note:

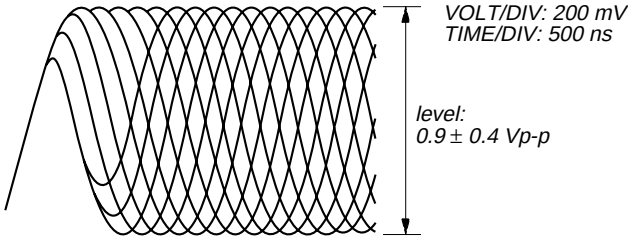
1. CD Block is basically constructed to operate without adjustment.
2. Use YEDS-18 disc (3-702-101-01) unless otherwise indicated.
3. Use an oscilloscope with more than 10 MΩ impedance.
4. Clean the object lens by an applicator with neutral detergent when the signal level is low than specified value with the following checks.
5. Check the focus bias check when optical pick-up block is replaced.

FOCUS BIAS CHECK

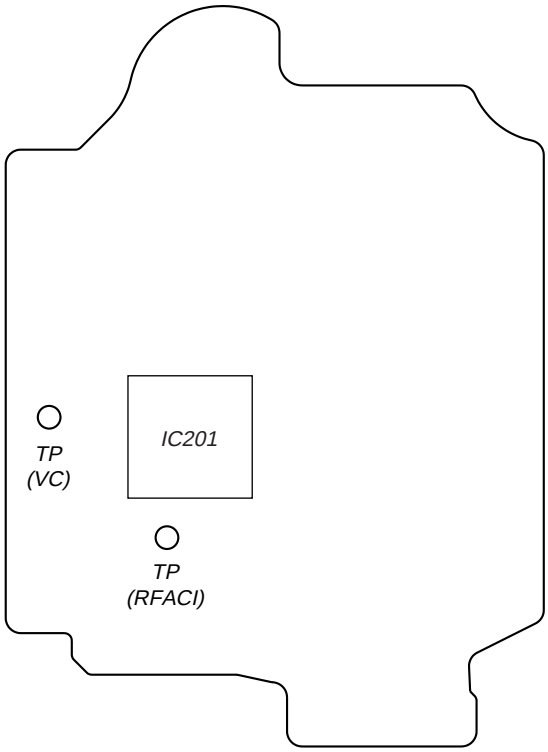


Procedure :

1. Connect oscilloscope to TP (RFACI) and TP (VC) on the CD board.
2. Press the I/⏻ button to turn the power on, and press the ⏏ button to open the CD disc table.
3. Set disc (YEDS-18) on the tray and press the CD ▶II button to playback.
4. Confirm that oscilloscope waveform is as shown in the figure below. (eye pattern)
   A good eye pattern means that the diamond shape (◊) in the center of the waveform can be clearly distinguished.

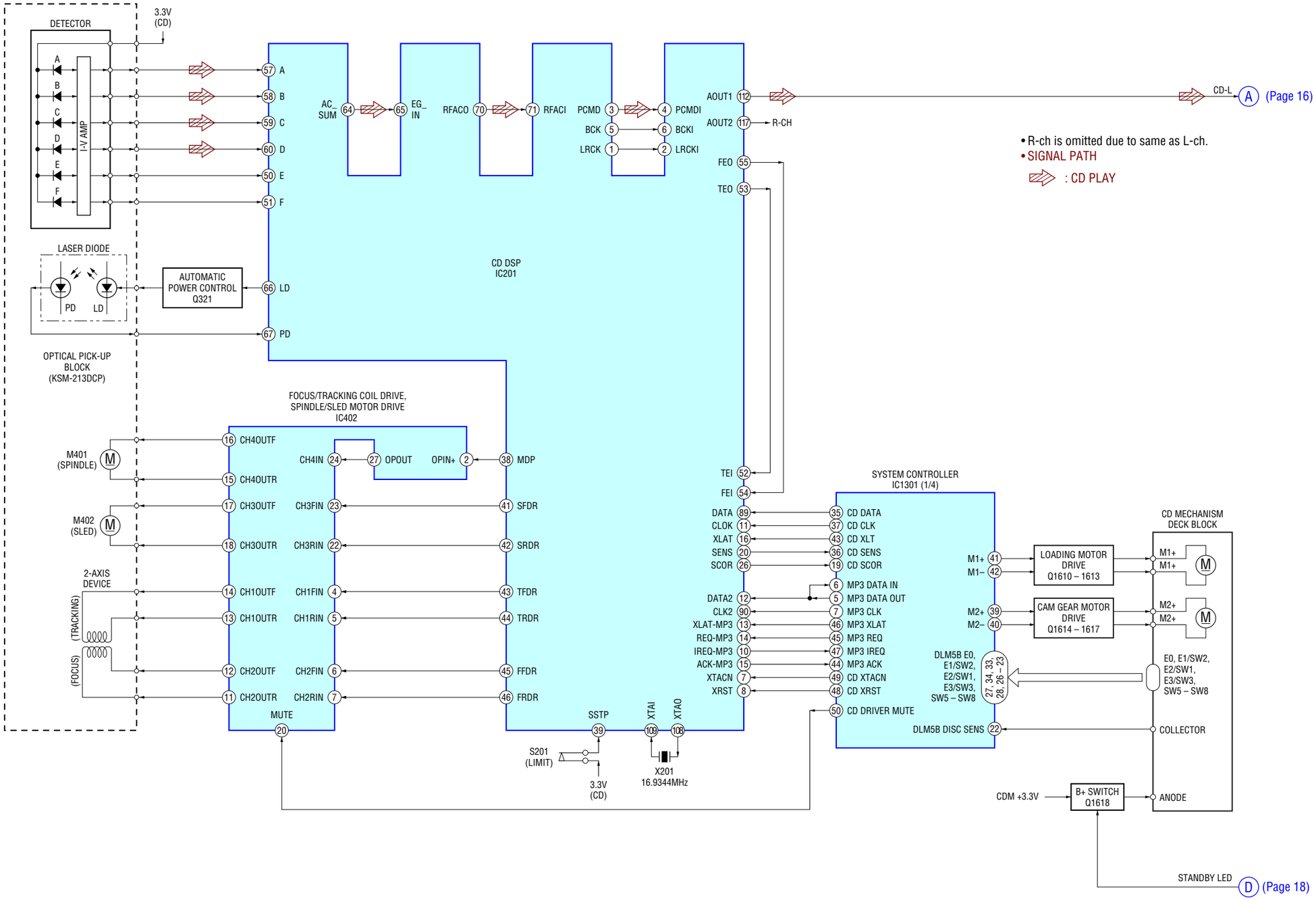


Checking Location:
– CD Board (Conductor Side) –

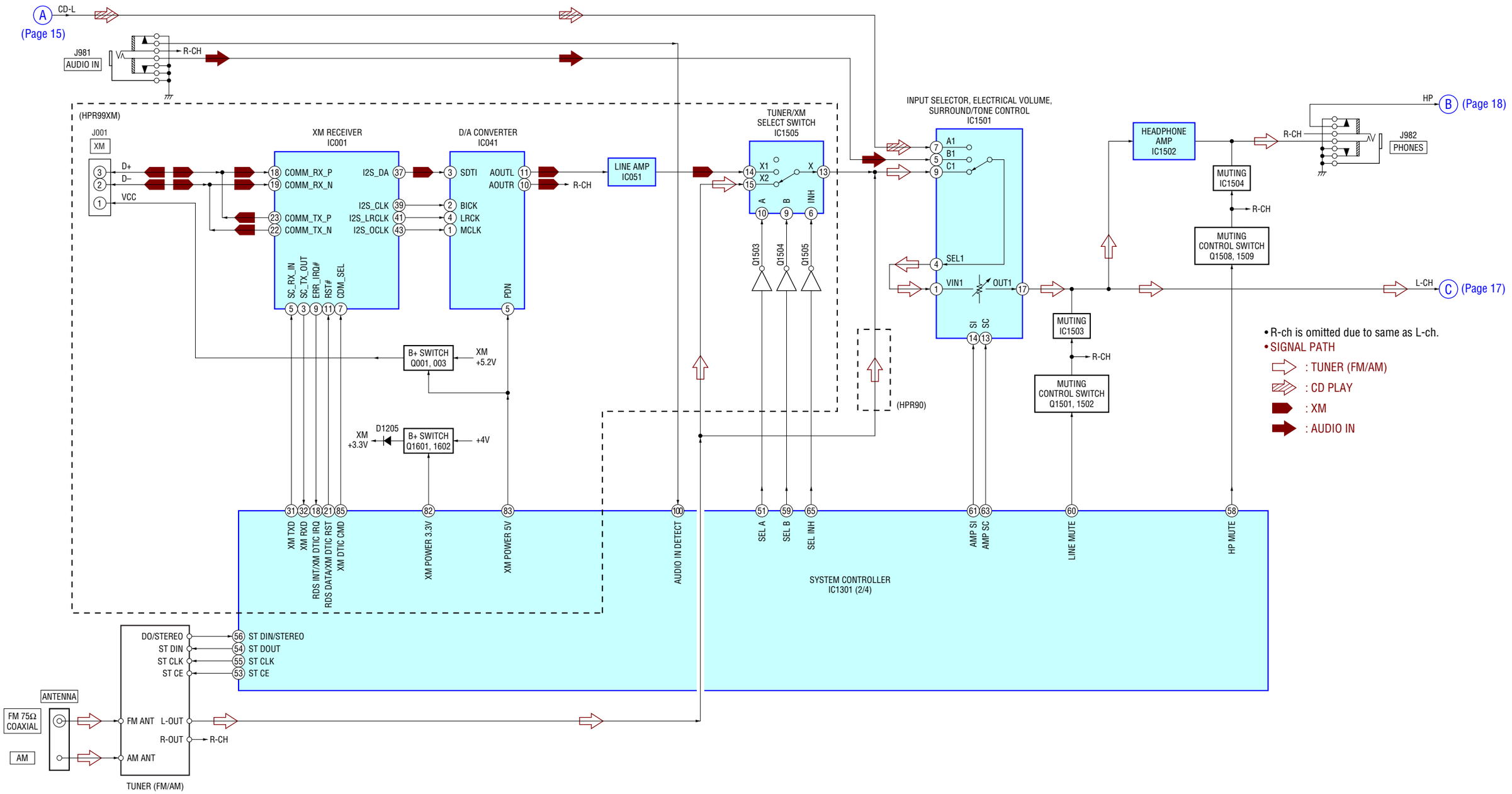


SECTION 6
DIAGRAMS

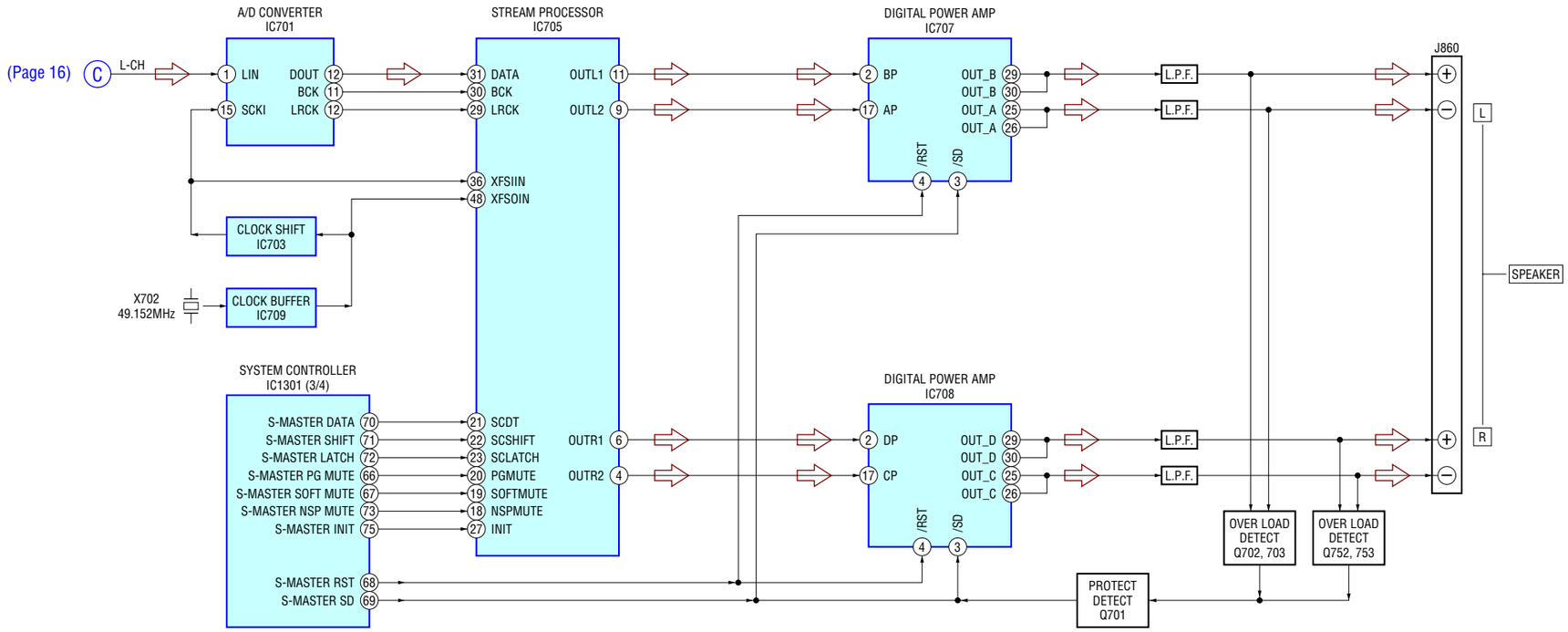
6-1. BLOCK DIAGRAM – CD SERVO Section –



6-2. BLOCK DIAGRAM – MAIN Section –



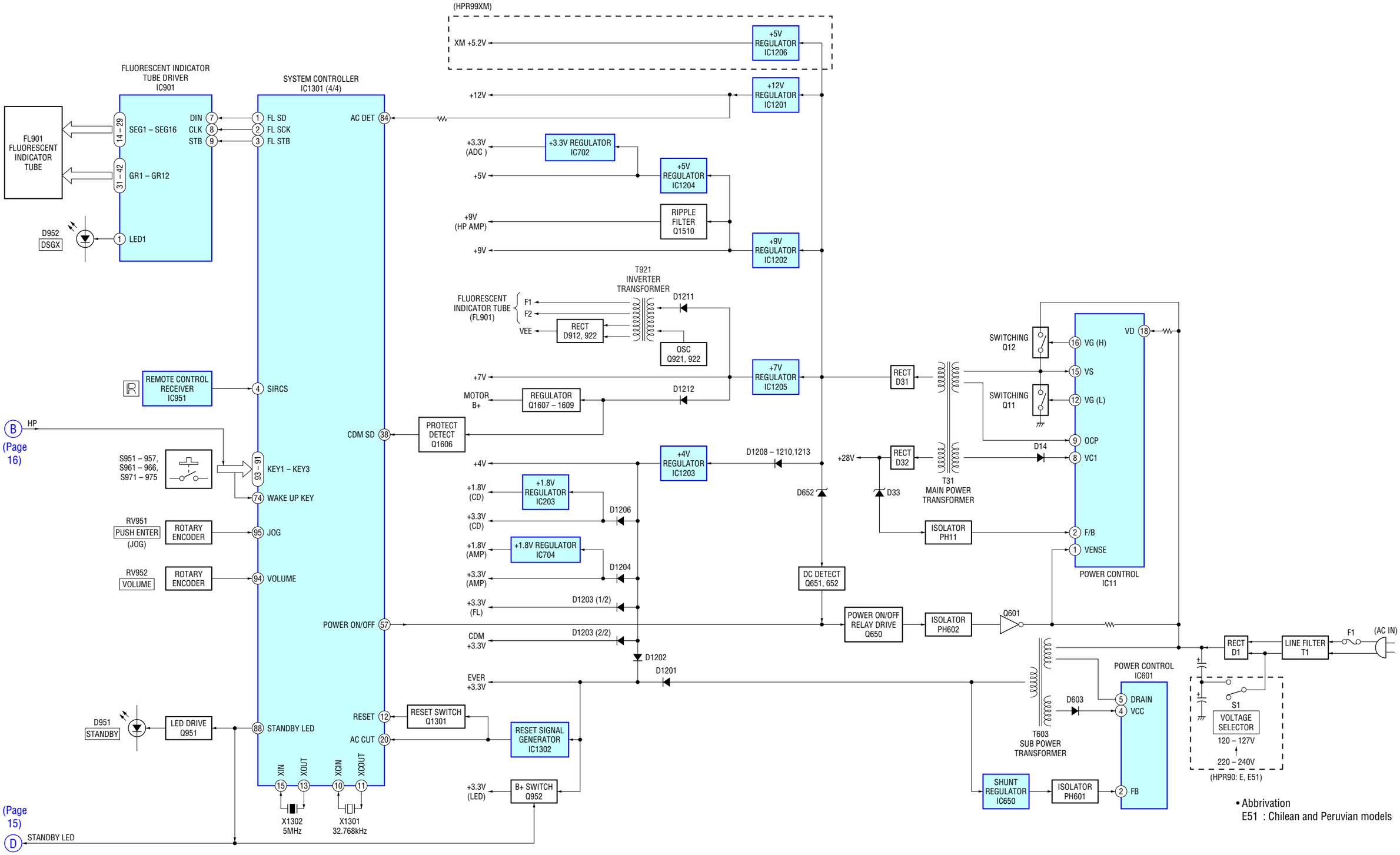
6-3. BLOCK DIAGRAM – AMP Section –



- R-ch is omitted due to same as L-ch.
- SIGNAL PATH

  ⇨ : TUNER (FM/AM)

6-4. BLOCK DIAGRAM – PANEL, POWER SUPPLY Section –



• Note For Printed Wiring Boards and Schematic Diagrams

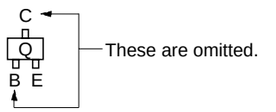
Note on Printed Wiring Board:

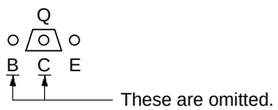
- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▬ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

Caution:	
Pattern face side: (Conductor Side)	Parts on the pattern face side seen from the pattern face are indicated.
Parts face side: (Component Side)	Parts on the parts face side seen from the parts face are indicated.

- Indication of transistor





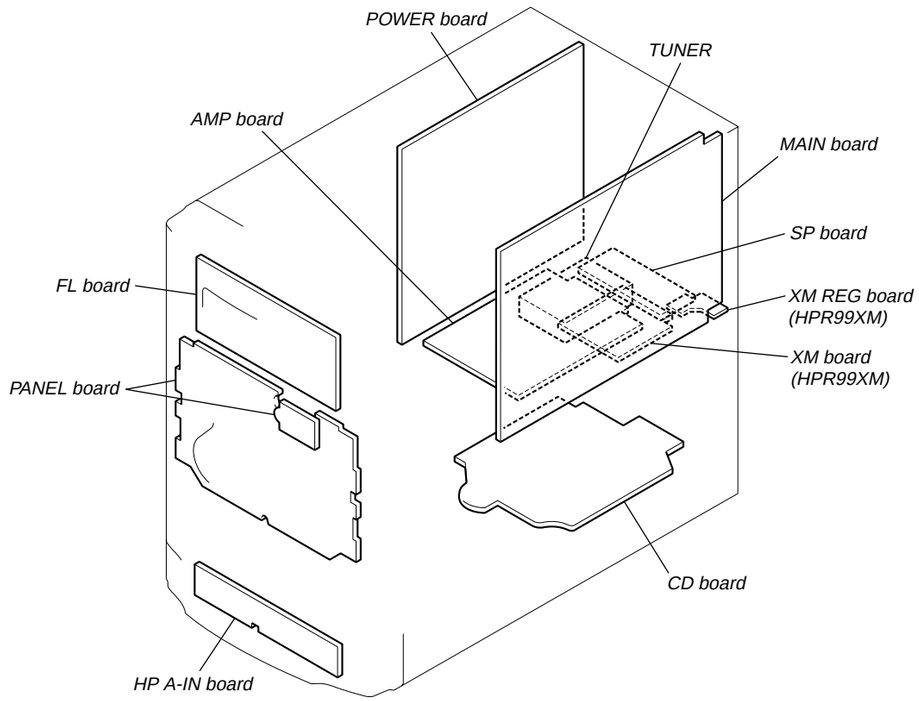
Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- : nonflammable resistor.
- : panel designation.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

- ▬▬ : B+ Line.
- ▬ ▬ ▬ : B– Line.
- Voltages and waveforms are dc with respect to ground under no-signal (detuned) conditions.
  – CD Board –
  no mark :CD PLAY
  – XM Board –
  no mark : XM
  – Other Boards –
  no mark : TUNER (FM/AM)
  ( ) : CD PLAY
  〈〈 〉〉 : XM
  * : Impossible to measure
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Waveforms are taken with a oscilloscope. Voltage variations may be noted due to normal production tolerances.
- Circled numbers refer to waveforms.
- Signal path.
  : TUNER (FM/AM)
  : CD PLAY
  : XM
  : AUDIO IN
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  CND : Canadian model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  SP : Singapore model

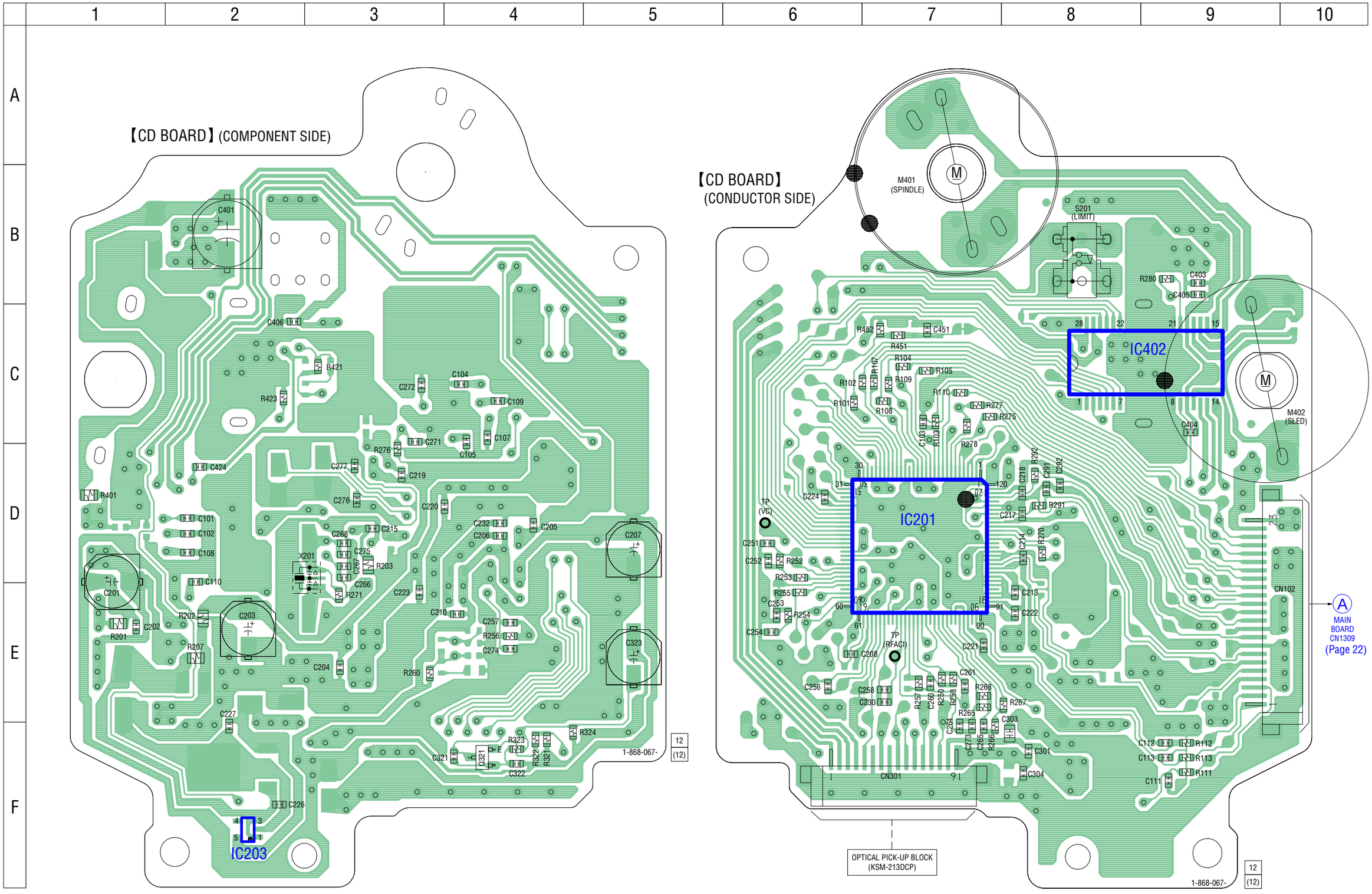
• Circuit Boards Location



6-5. PRINTED WIRING BOARD – CD Board –

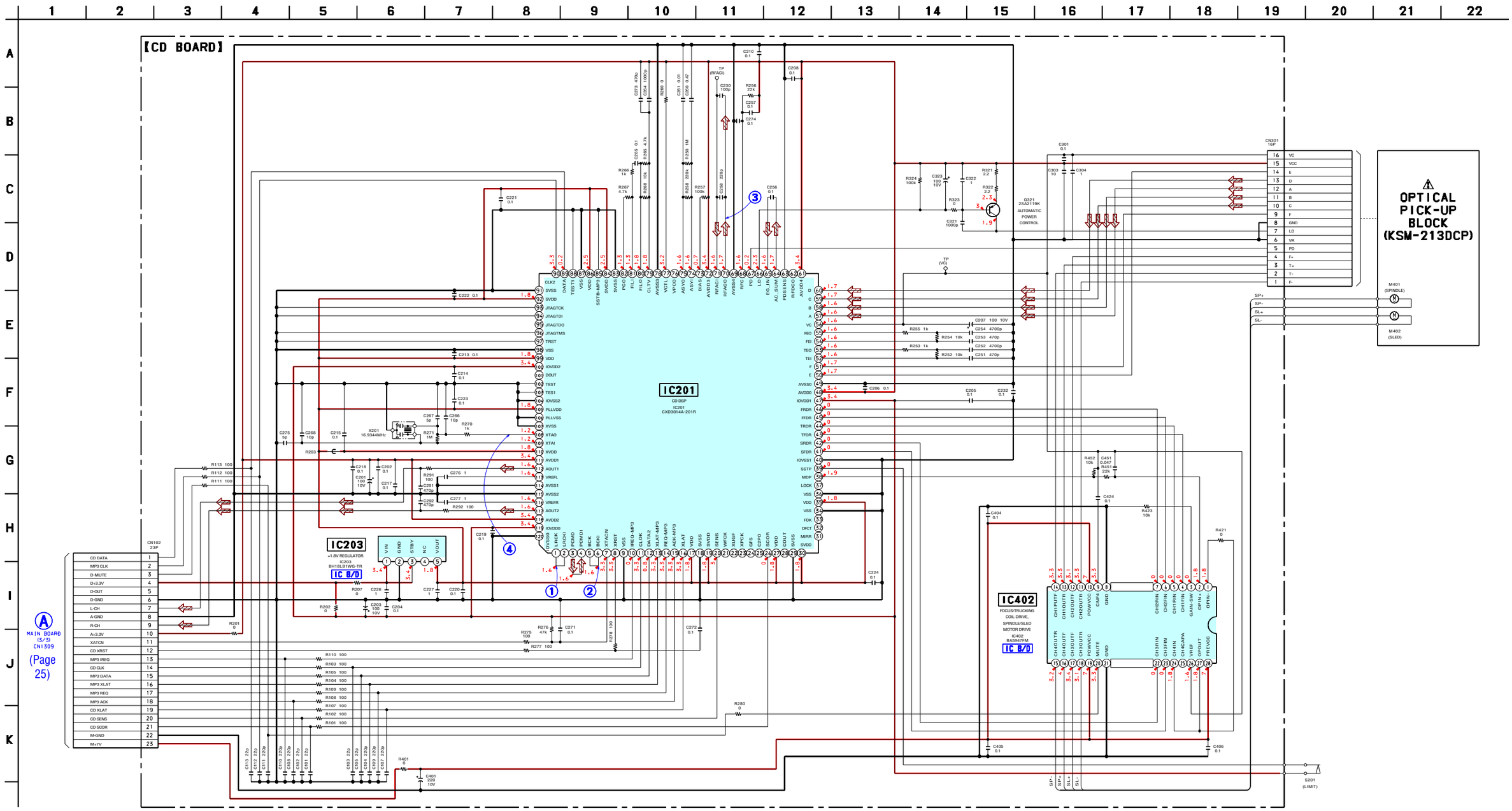
• See page 19 for Circuit Boards Location.

: Uses unleaded solder.



6-6. SCHEMATIC DIAGRAM – CD Board –

• See page 36 for Waveforms. • See page 37 for IC Block Diagrams. • See page 44 for IC Pin Function Description.



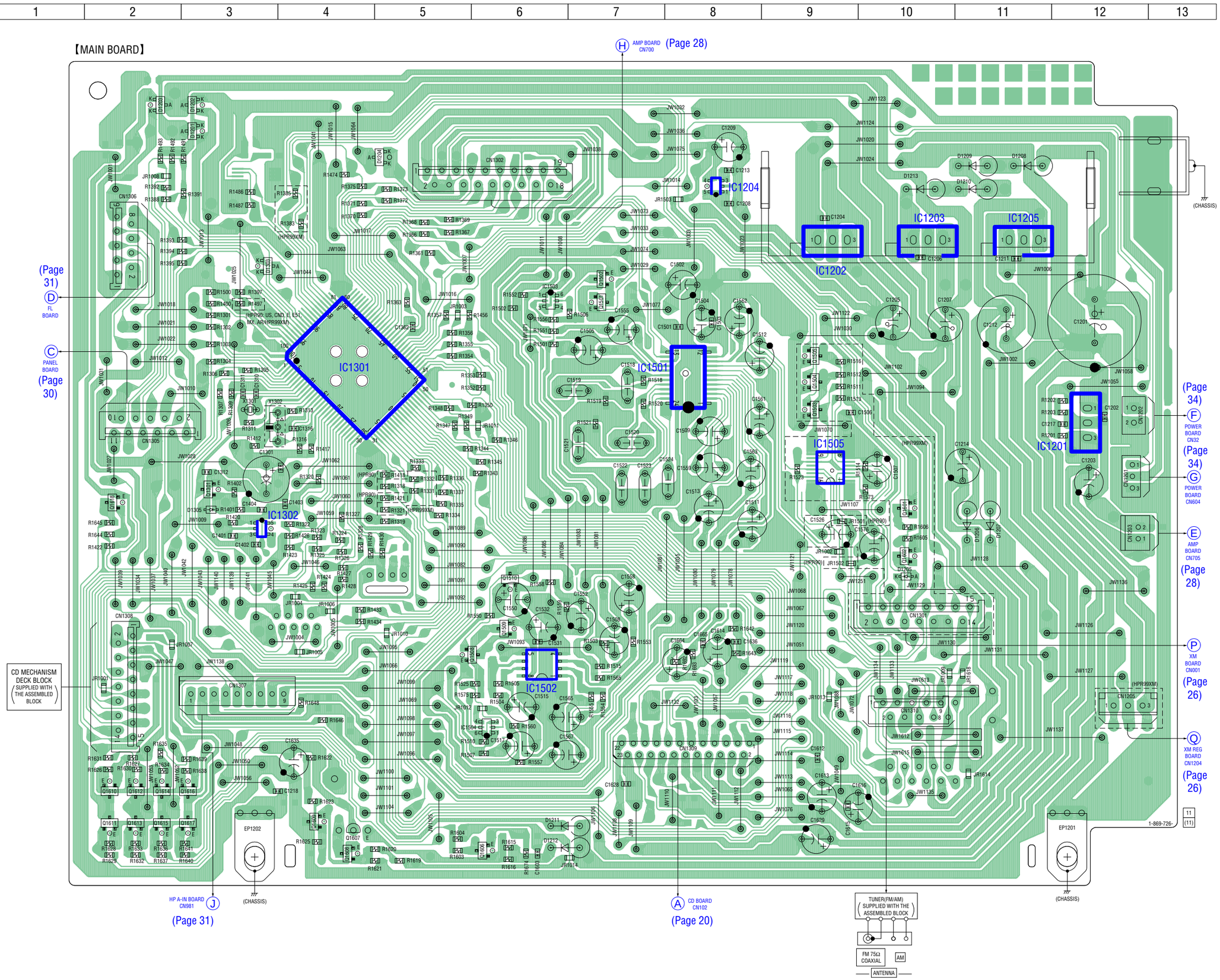
6-7. PRINTED WIRING BOARD – MAIN Board –

• See page 19 for Circuit Boards Location.

: Uses unleaded solder.

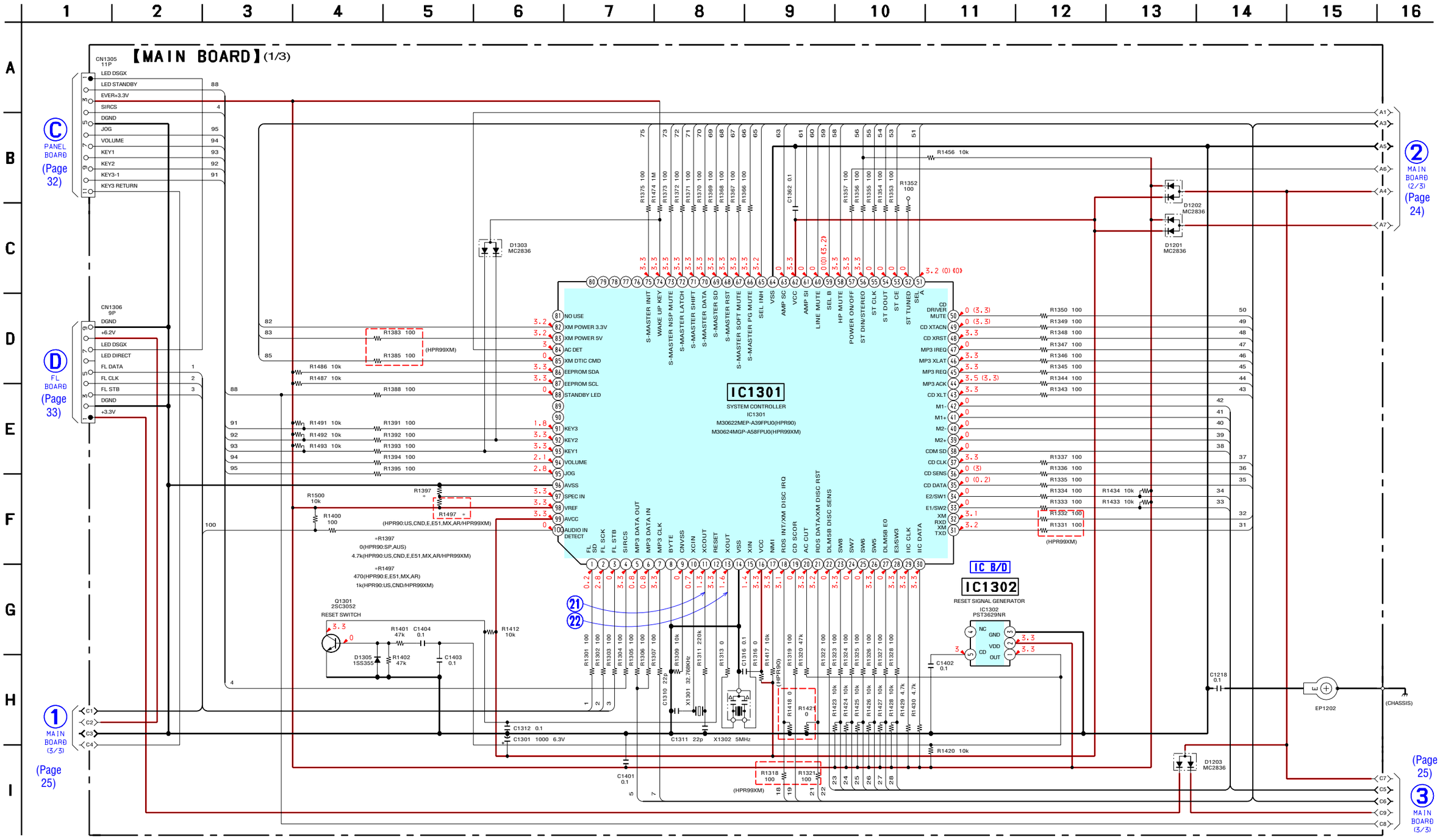
• **Semiconductor Location**

Ref. No.	Location
D1201	B-3
D1202	A-3
D1203	A-2
D1204	B-5
D1205	F-10
D1206	F-11
D1207	F-11
D1208	B-11
D1209	B-11
D1210	B-11
D1211	I-6
D1212	I-6
D1213	B-10
D1303	C-3
D1305	F-3
IC1201	E-12
IC1202	C-9
IC1203	C-10
IC1204	B-8
IC1205	C-11
IC1301	D-4
IC1302	F-3
IC1501	D-6
IC1502	G-6
IC1503	C-6
IC1504	H-6
IC1505	E-9
Q1301	E-3
Q1501	C-7
Q1502	C-7
Q1503	E-9
Q1504	D-9
Q1505	D-9
Q1508	G-6
Q1509	G-6
Q1510	F-6
Q1601	F-10
Q1602	F-10
Q1606	I-6
Q1607	I-4
Q1608	I-4
Q1609	I-4
Q1610	H-2
Q1611	I-2
Q1612	H-2
Q1613	I-2
Q1614	H-2
Q1615	I-2
Q1616	H-3
Q1617	I-3
Q1618	E-2



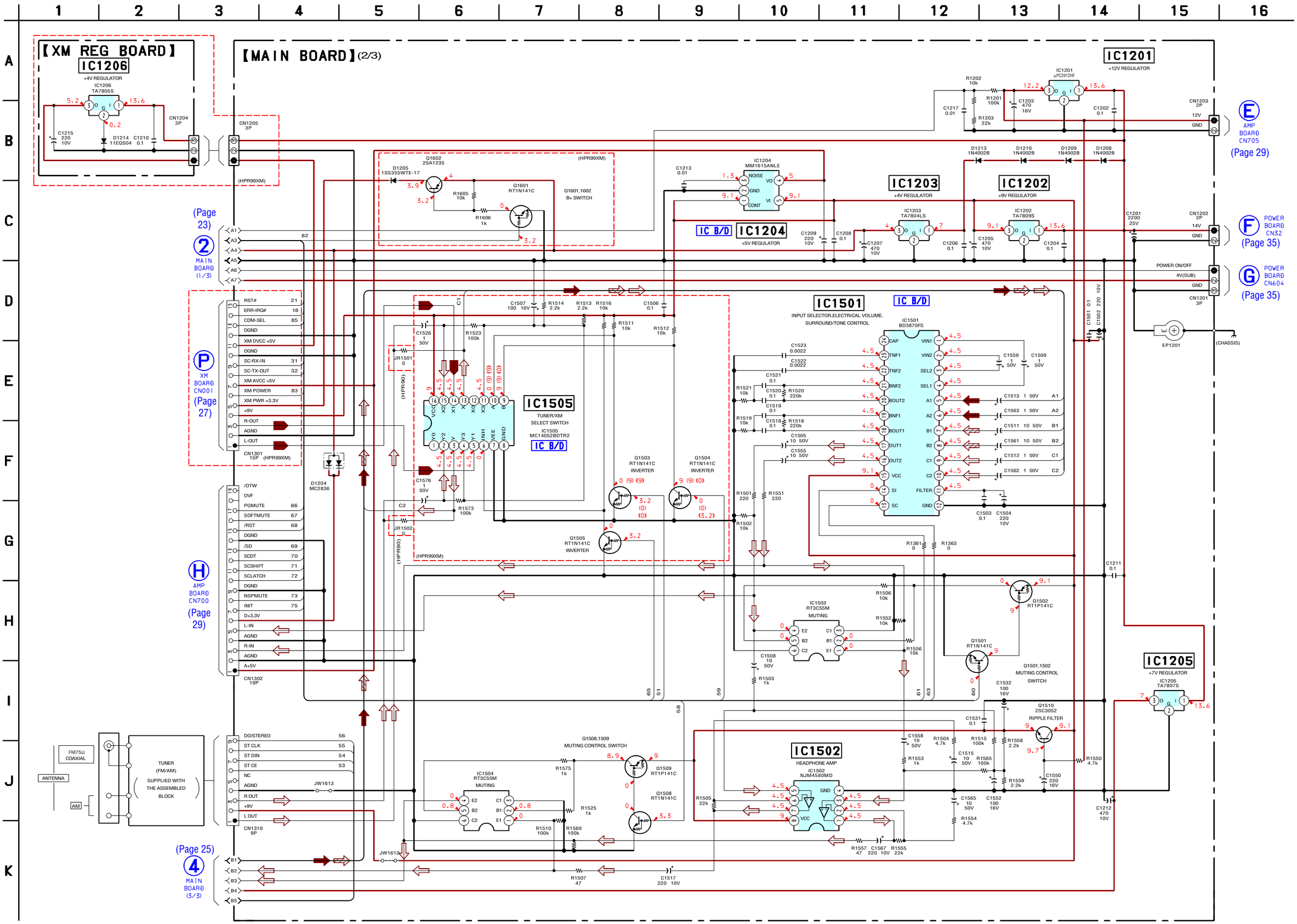
6-8. SCHEMATIC DIAGRAM – MAIN Section (1/3) –

• See page 36 for Waveforms. • See page 37 for IC Block Diagrams. • See page 44 for IC Pin Function Description.

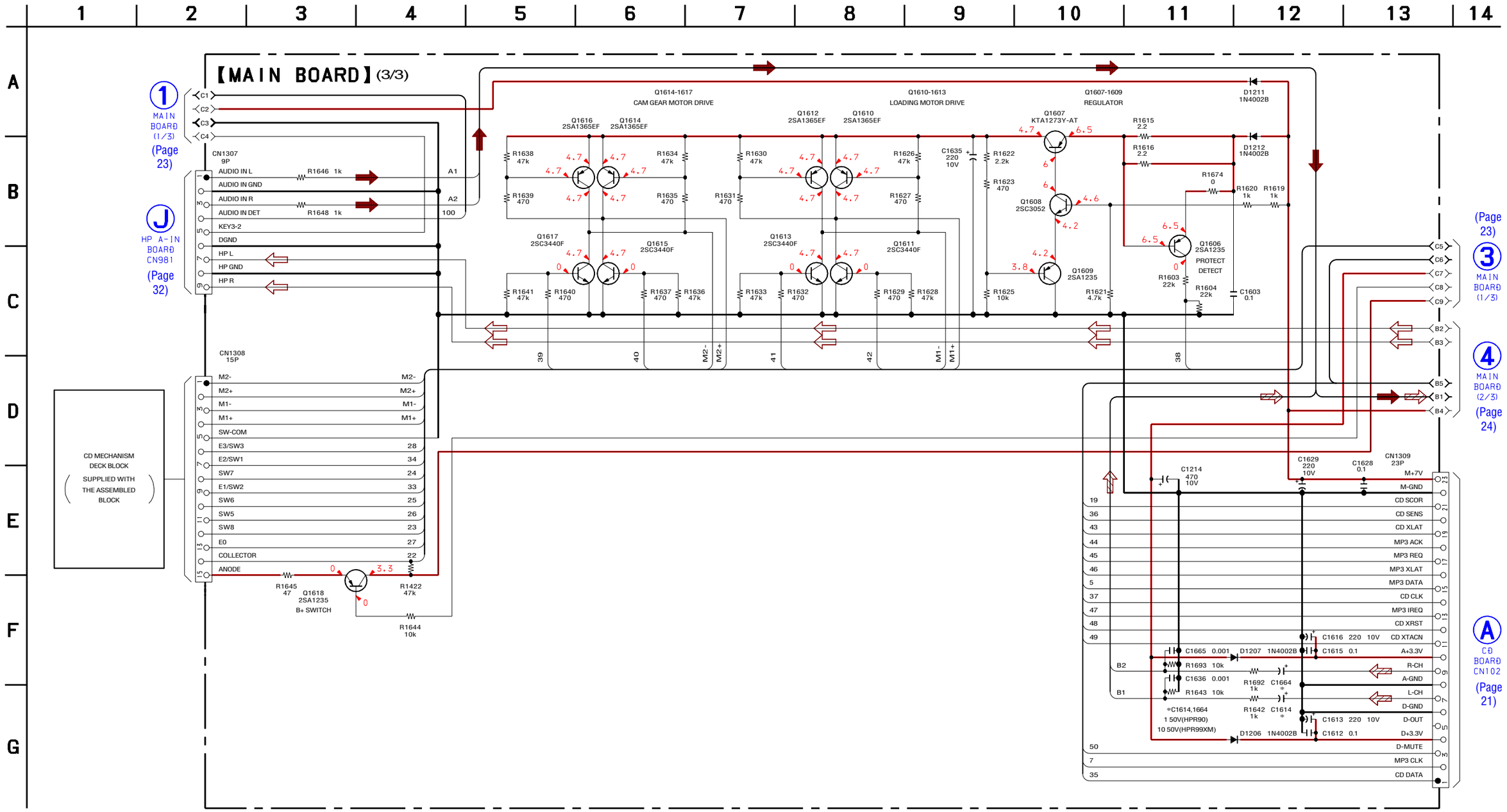


6-9. SCHEMATIC DIAGRAM – MAIN Section (2/3) –

• See page 37 for IC Block Diagrams.



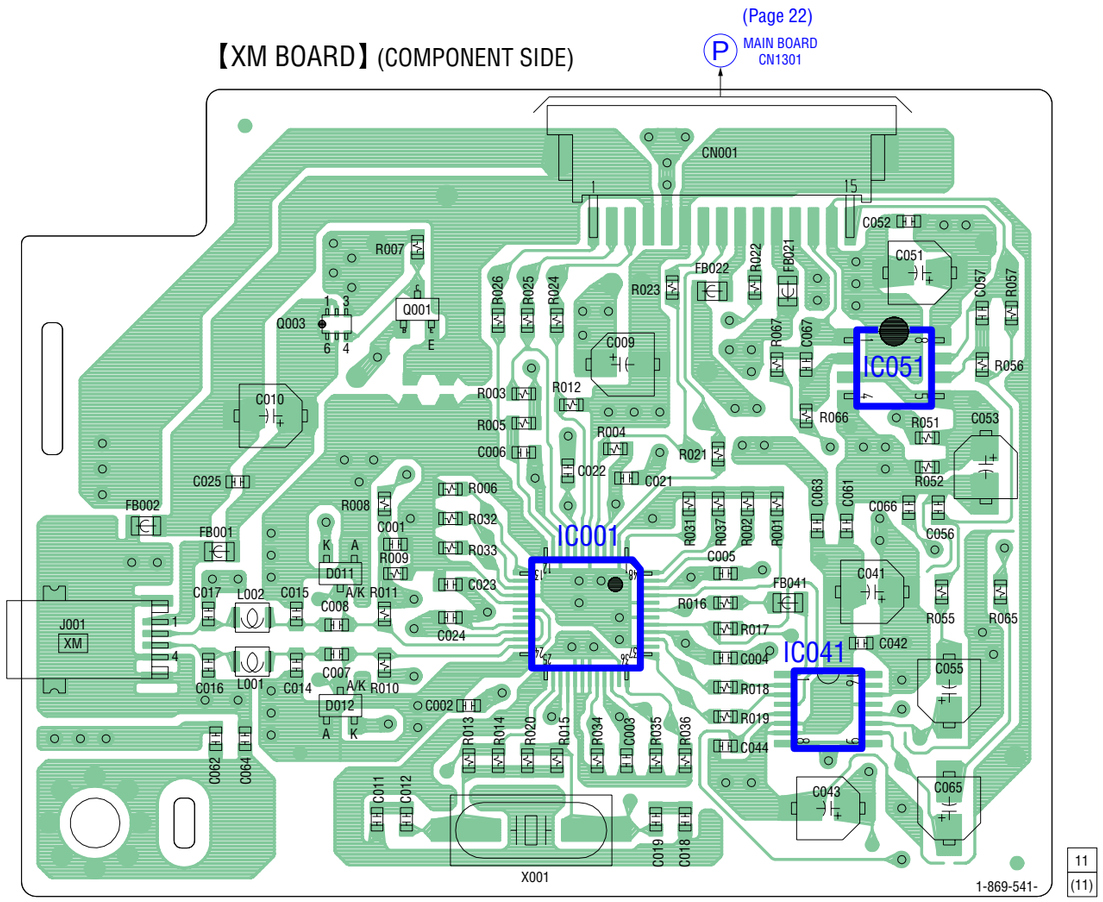
6-10. SCHEMATIC DIAGRAM – MAIN Section (3/3) –



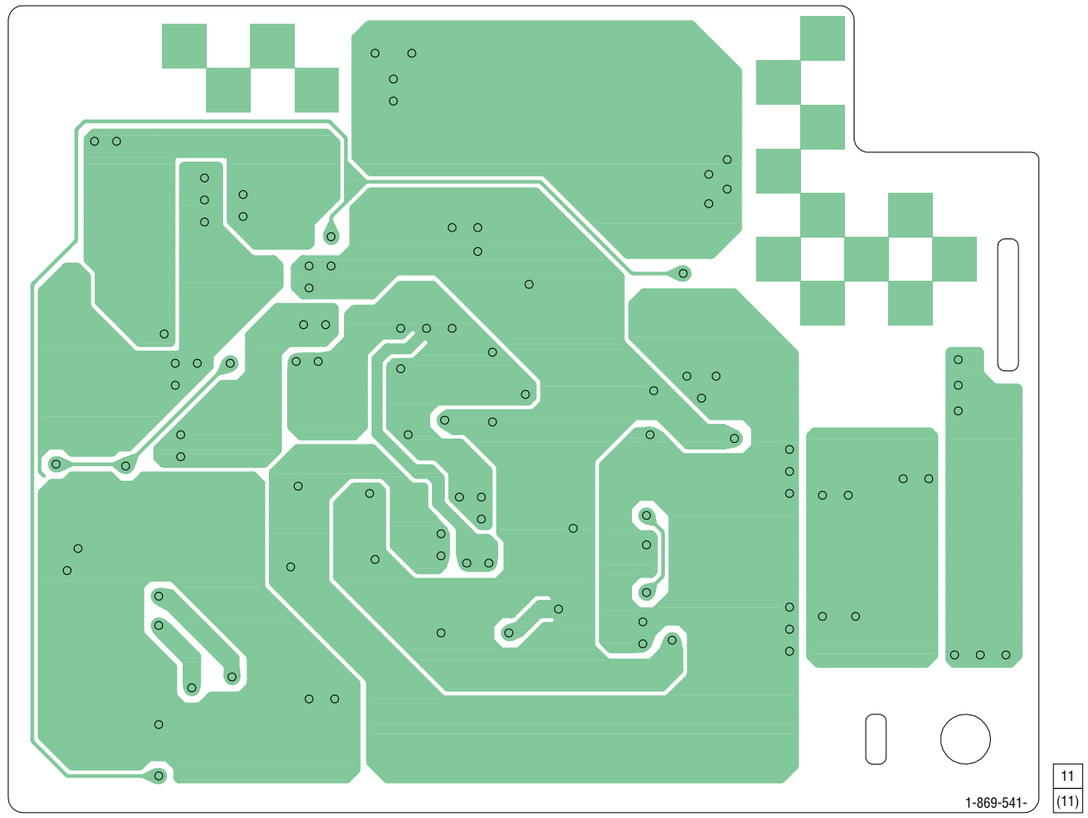
6-11. PRINTED WIRING BOARDS – XM Section (HPR99XM) –

• See page 19 for Circuit Boards Location. : Uses unleaded solder.

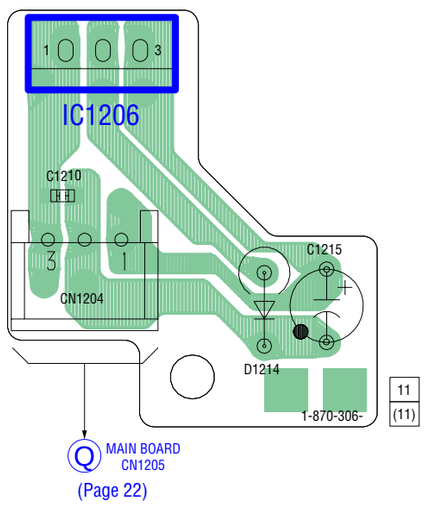
【XM BOARD】(COMPONENT SIDE)



【XM BOARD】(CONDUCTOR SIDE)



【XM REG BOARD】

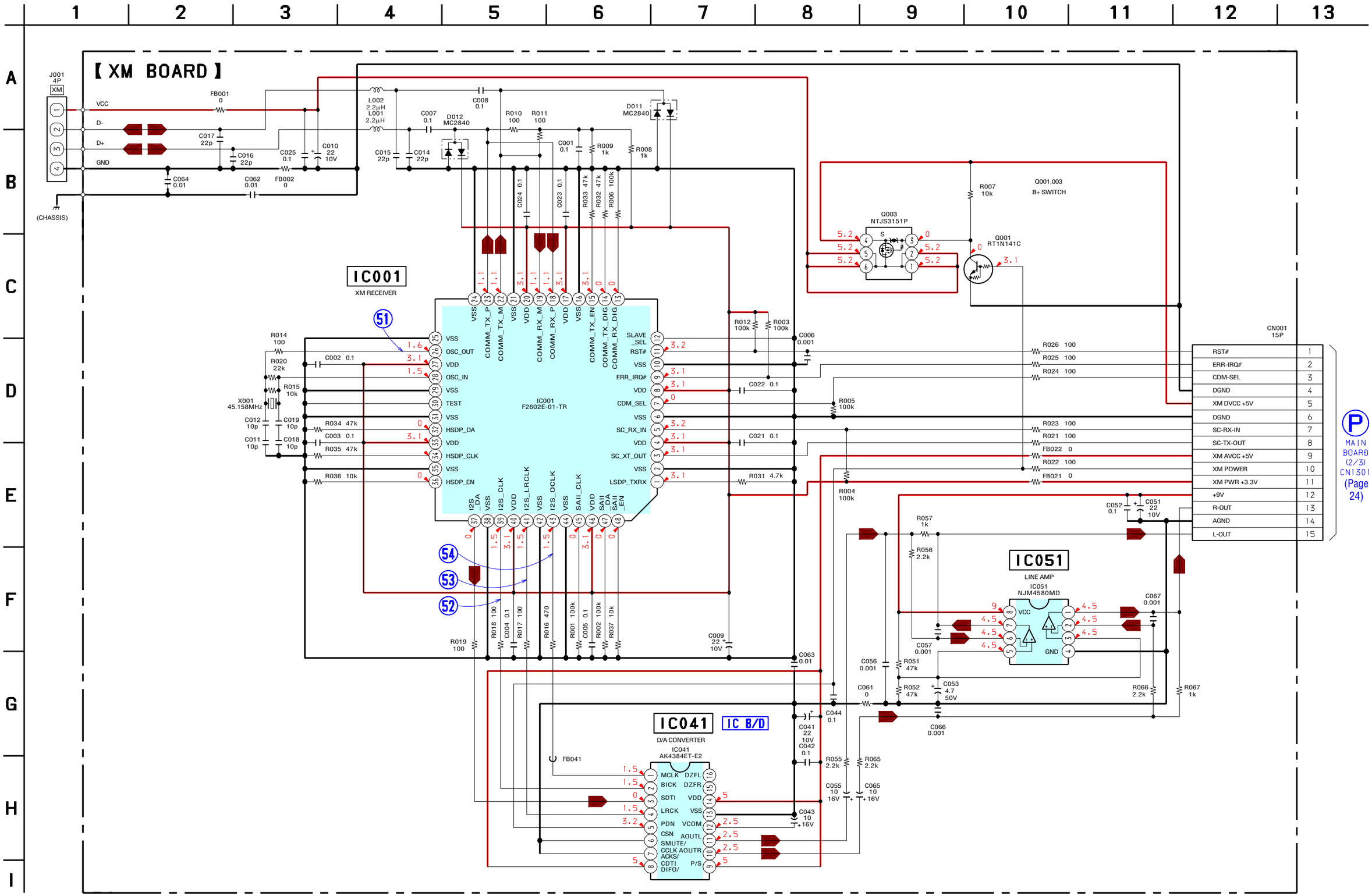


- **Semiconductor Location**

Ref. No.	Location
D011	C-2
D012	D-2
D1214	F-2
IC001	C-3
IC041	D-4
IC051	B-4
IC1206	E-1
Q001	B-2
Q003	B-2

6-12. SCHEMATIC DIAGRAM – XM Board (HPR99XM) –

• See page 36 for Waveforms. • See page 37 for IC Block Diagrams. • See page 44 for IC Pin Function Description.

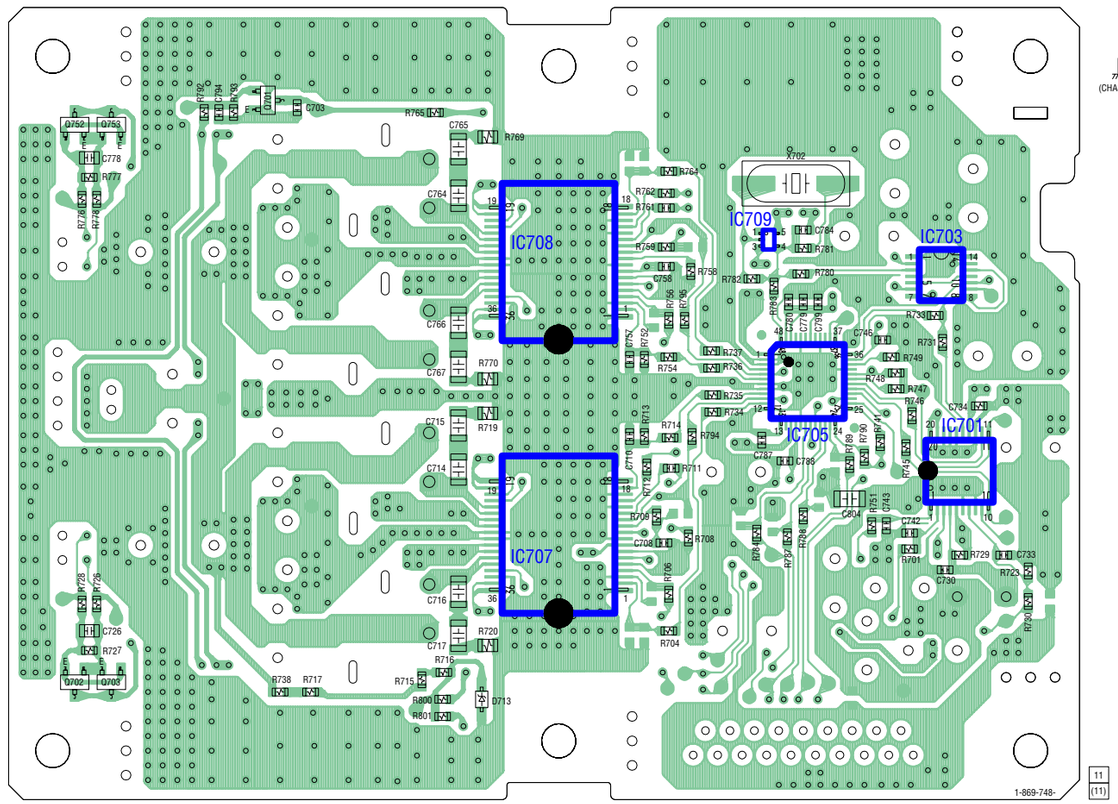


6-13. PRINTED WIRING BOARD – AMP Board –

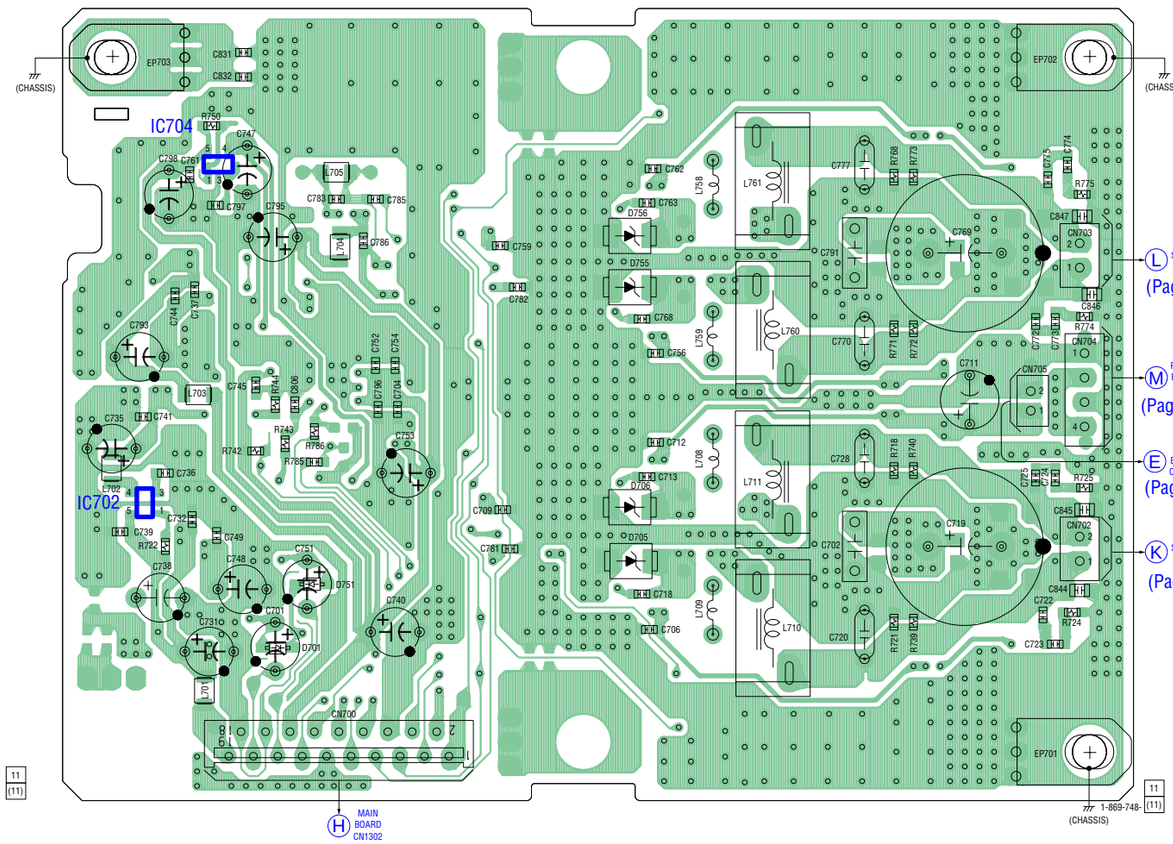
• See page 19 for Circuit Boards Location.

: Uses unleaded solder.

【AMP BOARD】(COMPONENT SIDE)



【AMP BOARD】(CONDUCTOR SIDE)

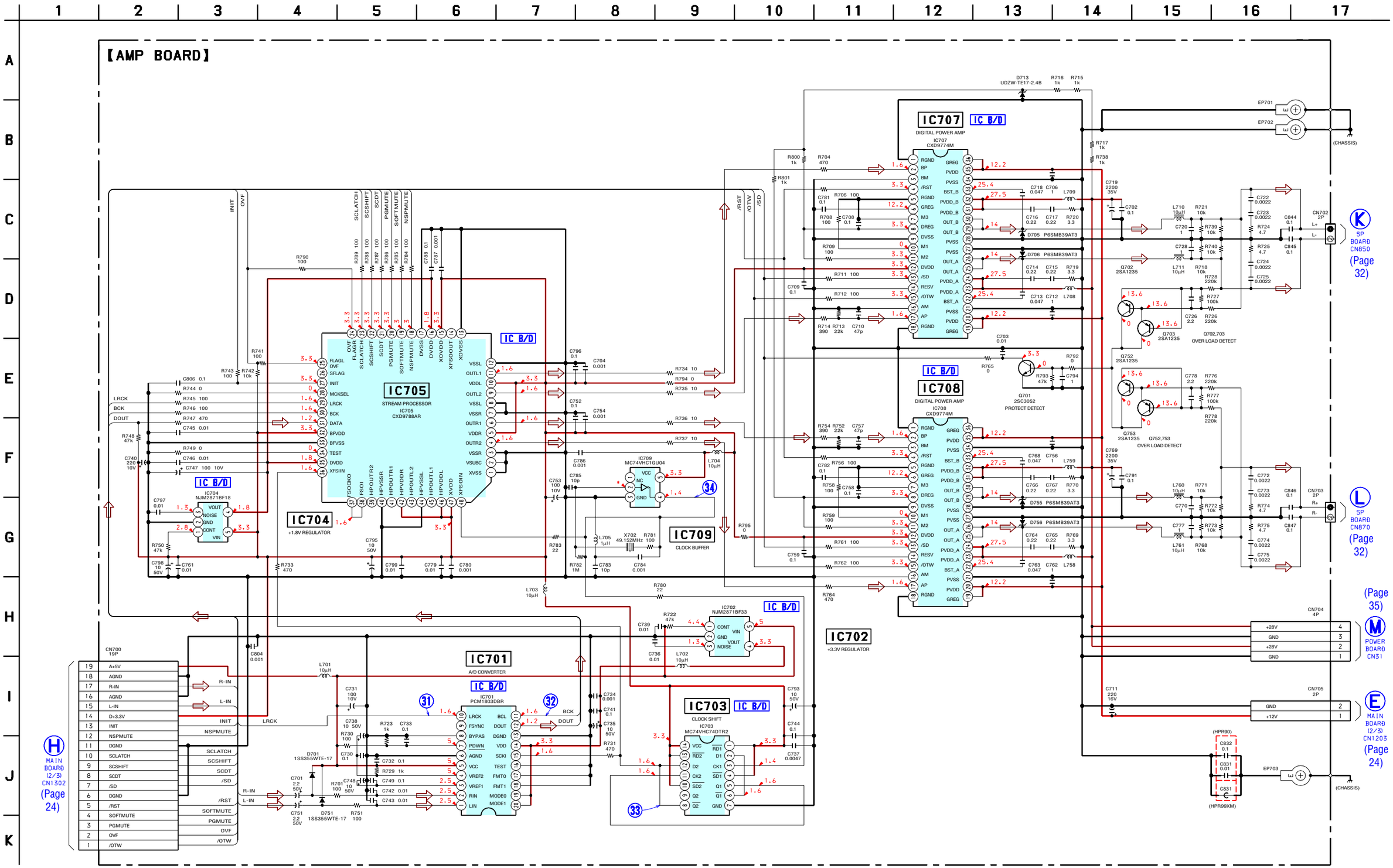


- **Semiconductor Location**

Ref. No.	Location
D701	E-9
D705	D-11
D706	D-11
D713	E-4
D751	E-9
D755	C-11
D756	B-11
IC701	D-7
IC702	D-8
IC703	C-6
IC704	B-9
IC705	C-6
IC707	D-4
IC708	C-4
IC709	B-5
Q701	B-2
Q702	E-1
Q703	E-1
Q752	B-1
Q753	B-1

6-14. SCHEMATIC DIAGRAM – AMP Board –

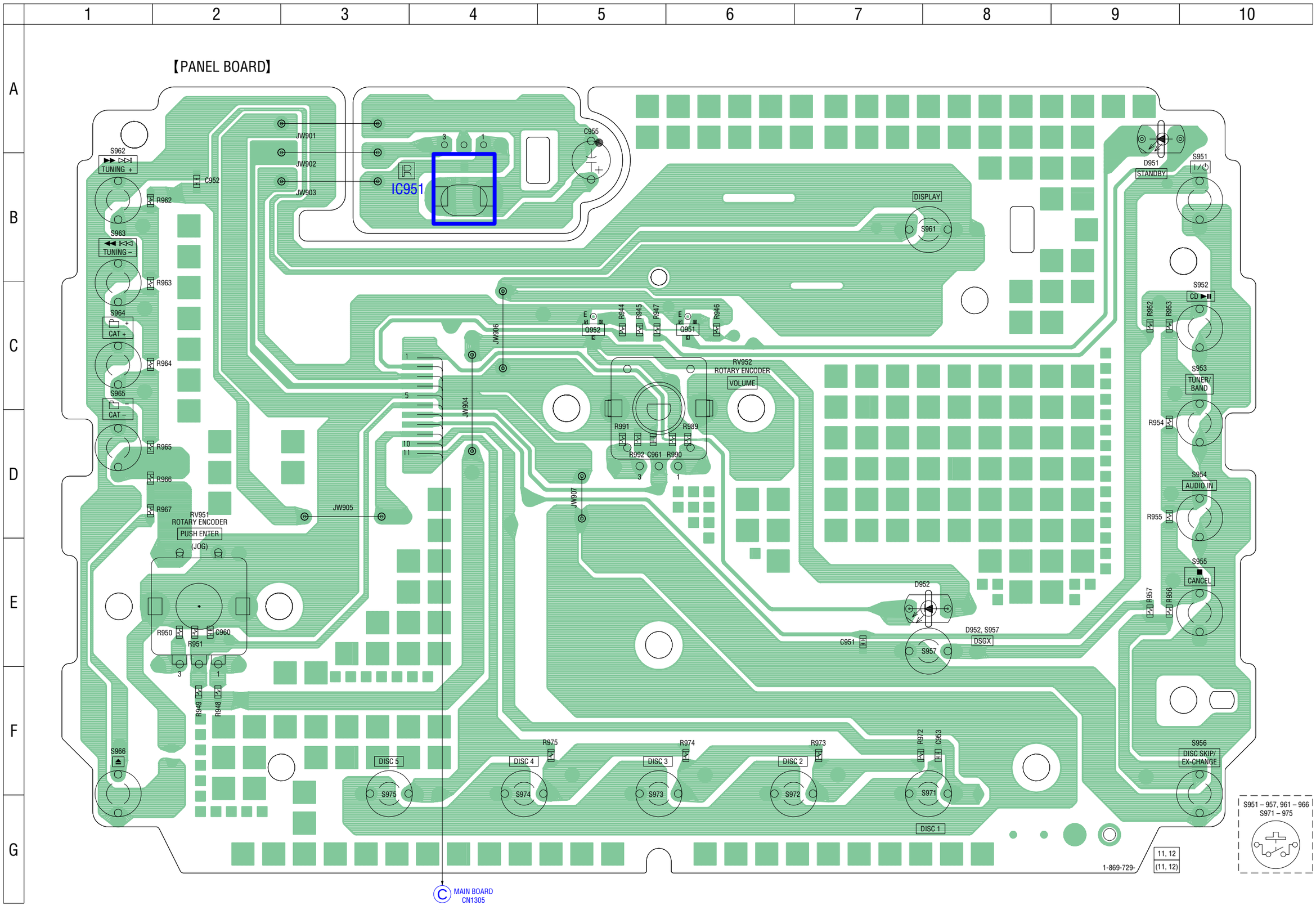
• See page 36 for Waveforms. • See page 37 for IC Block Diagrams.



6-15. PRINTED WIRING BOARD – PANEL Board –

• See page 19 for Circuit Boards Location. : Uses unleaded solder.

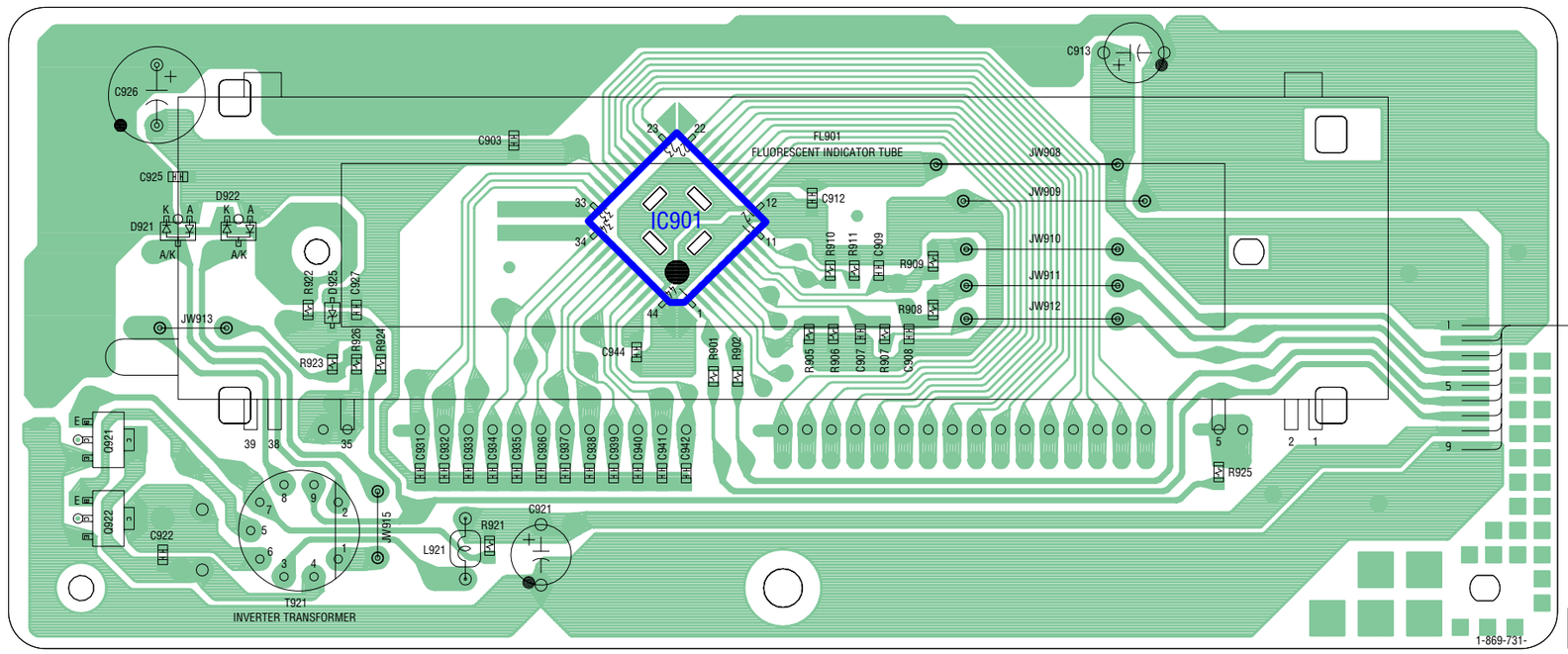
【PANEL BOARD】



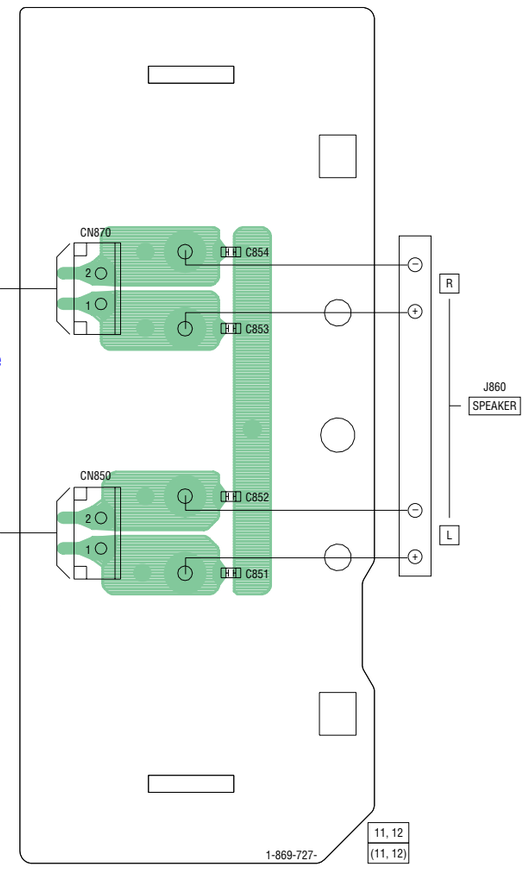
6-16. PRINTED WIRING BOARDS – FL Section –

• See page 19 for Circuit Boards Location. : Uses unleaded solder.

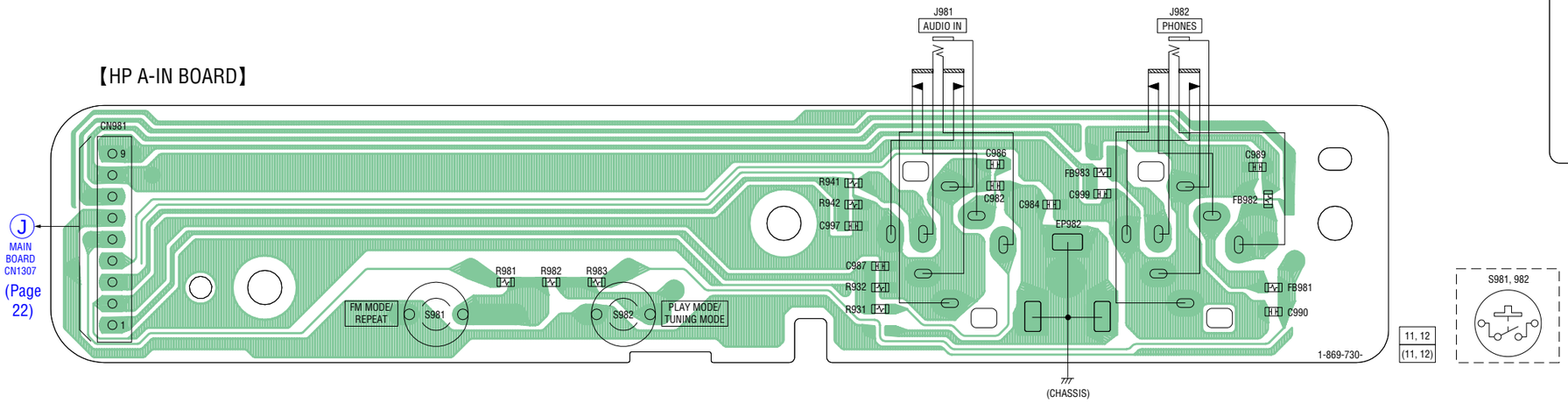
【FL BOARD】



【SP BOARD】



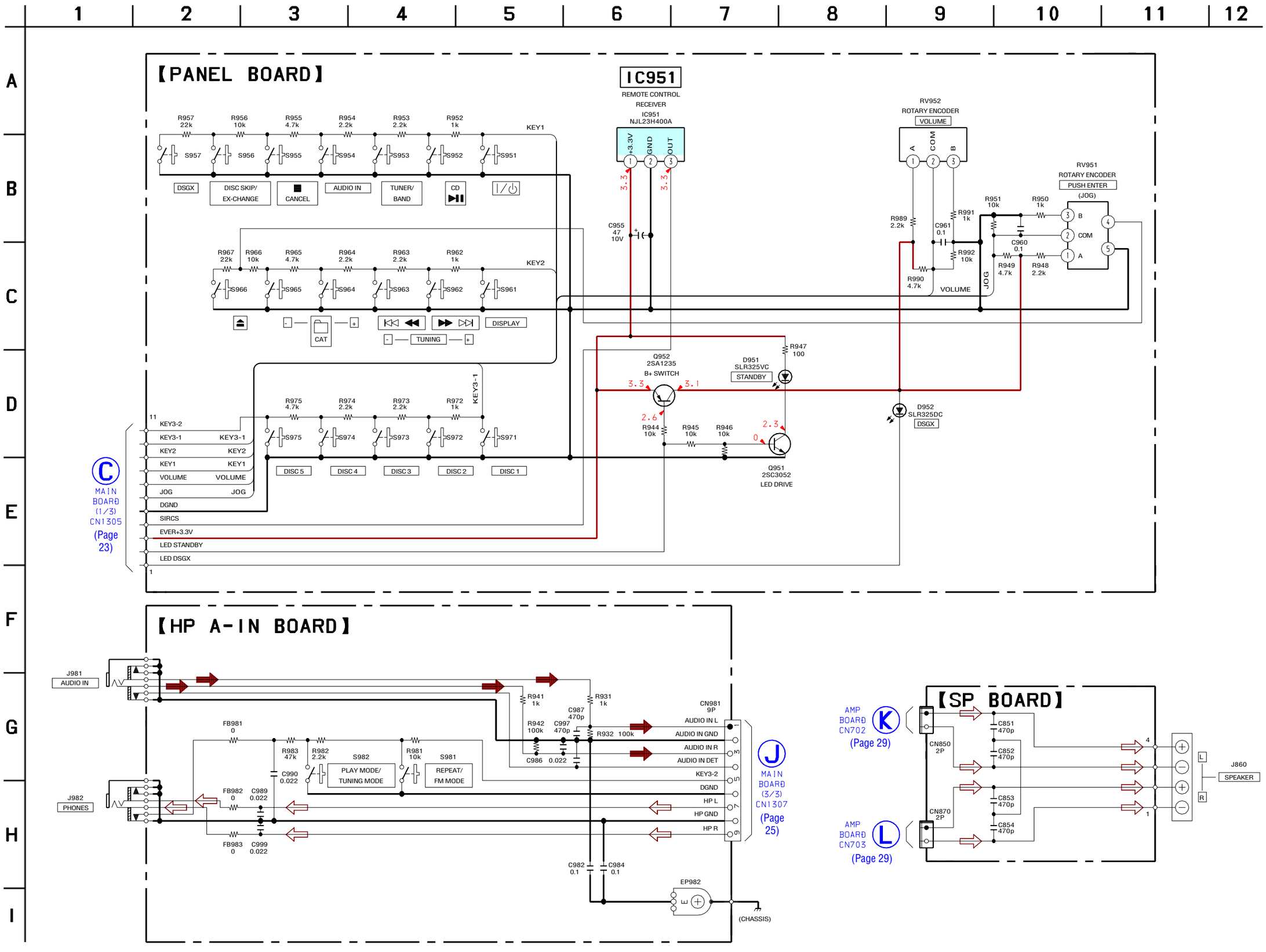
【HP A-IN BOARD】



• **Semiconductor Location**

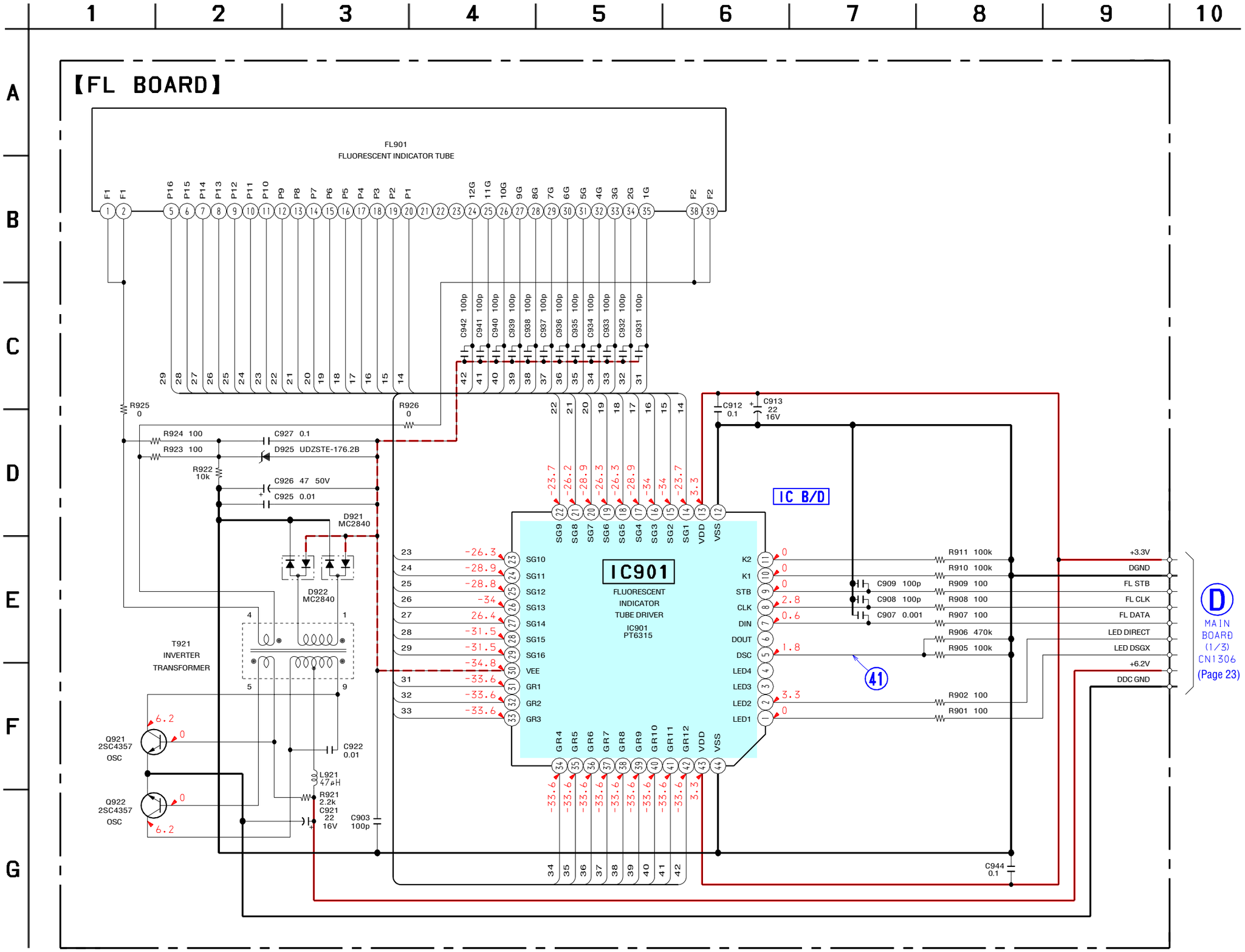
Ref. No.	Location
D921	B-2
D922	B-2
D925	C-3
IC901	B-4
Q921	C-2
Q922	D-2

6-17. SCHEMATIC DIAGRAM – PANEL Section –



6-18. SCHEMATIC DIAGRAM – FL Board –

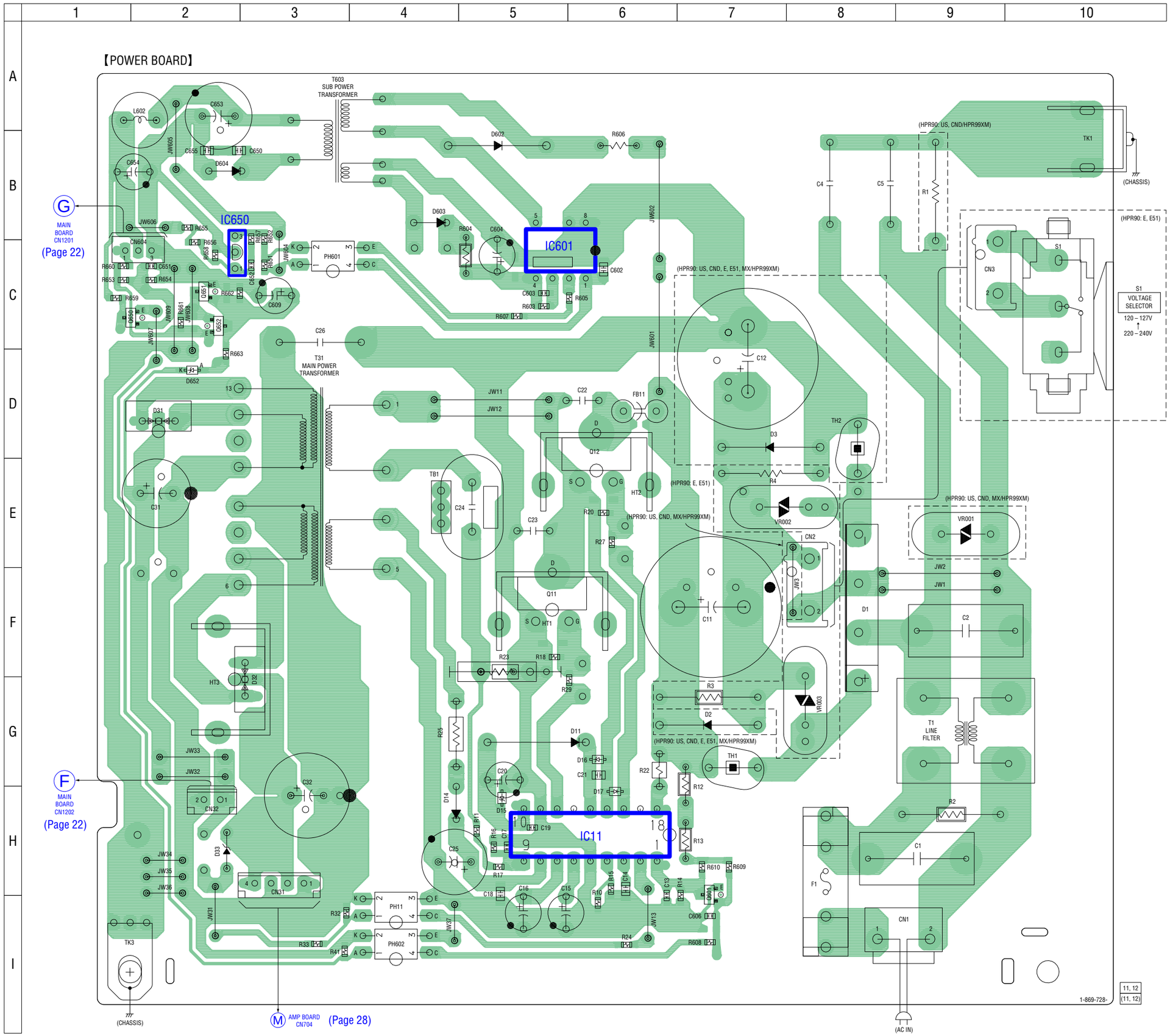
• See page 36 for Waveforms. • See page 37 for IC Block Diagrams.



6-19. PRINTED WIRING BOARD – POWER Board –

• See page 19 for Circuit Boards Location. : Uses unleaded solder.

【POWER BOARD】

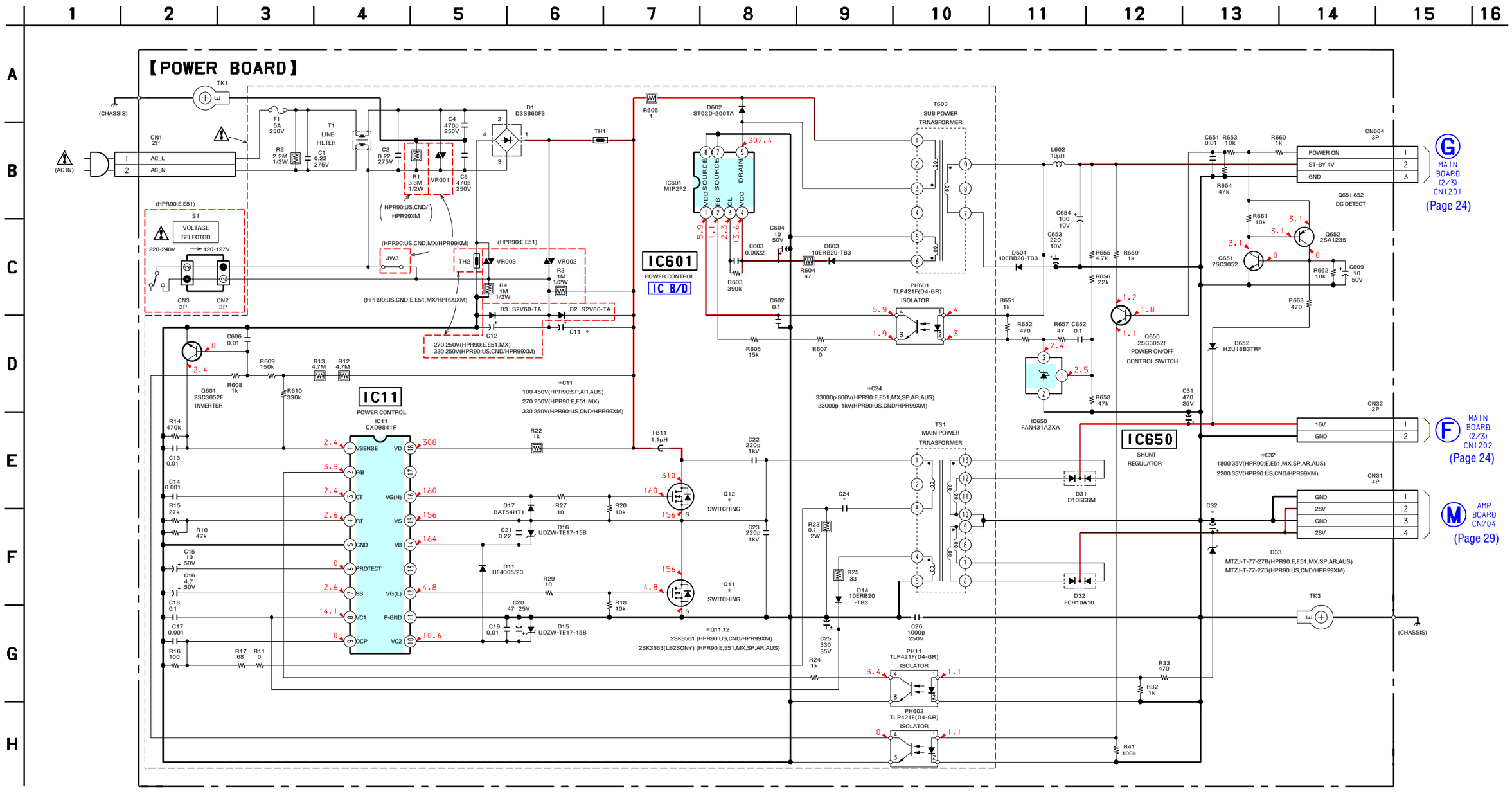


- **Semiconductor Location**

Ref. No.	Location
D1	F-8
D2	G-7
D3	D-7
D11	G-5
D14	H-4
D15	H-5
D16	G-6
D17	H-6
D31	D-2
D32	G-3
D33	H-2
D602	B-5
D603	B-4
D604	B-2
D652	D-2
IC11	H-6
IC601	C-5
IC650	C-2
PH11	I-4
PH601	C-3
PH602	I-4
Q11	F-5
Q12	E-6
Q601	H-7
Q650	C-2
Q651	C-2
Q652	C-2

6-20. SCHEMATIC DIAGRAM – POWER Board –

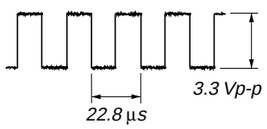
• See page 37 for IC Block Diagrams. • See page 44 for IC Pin Function Description.



- **Waveforms**

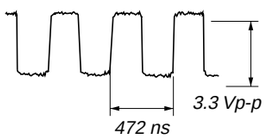
– CD Board –

(1) IC201 ① (LRCK), ② (LRCKI) (CD play mode)



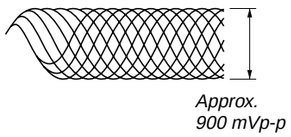
1 V/DIV, 10 µs/DIV

(2) IC201 ⑤ (BCK), ⑥ (BCKI) (CD play mode)



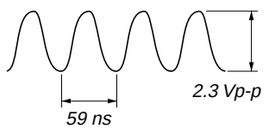
1 V/DIV, 200 ns/DIV

(3) IC201 ⑳ (RFACO) (CD play mode)



200 mV/DIV, 500 ns/DIV

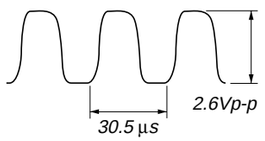
(4) IC201 ⑩⑧ (XTAO) (CD play mode)



1 V/DIV, 20 ns/DIV

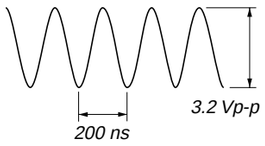
– MAIN Board –

(21) IC1301 ⑪ (XCOUT)



1 V/DIV, 10 µs/DIV

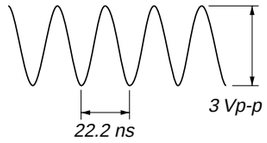
(22) IC1301 ⑬ (XOUT)



1 V/DIV, 100 ns/DIV

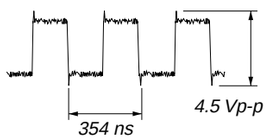
– XM Board –

(51) IC001 ㉖ (OSC_OUT) (XM mode)



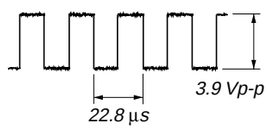
1 V/DIV, 10 ns/DIV

(52) IC001 ㊴ (I2S_CLK) (XM mode)



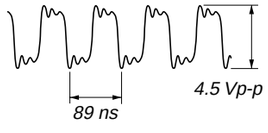
1 V/DIV, 100 ns/DIV

(53) IC001 ㊶ (I2S_LRCLK) (XM mode)



1 V/DIV, 10 µs/DIV

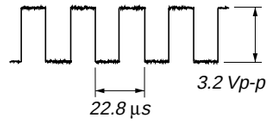
(54) IC001 ㊸ (I2S_OCLK) (XM mode)



1 V/DIV, 50 ns/DIV

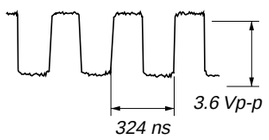
– AMP Board –

(31) IC701 ⑩ (LRCK)



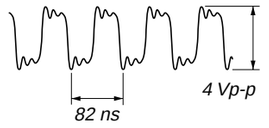
1 V/DIV, 10 µs/DIV

(32) IC701 ⑪ (BCK)



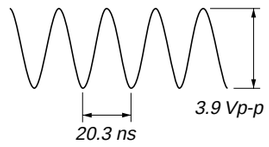
1 V/DIV, 100 ns/DIV

(33) IC703 ⑧ ($\overline{Q2}$)



1 V/DIV, 50 ns/DIV

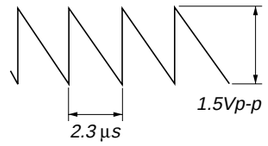
(34) IC709 ④



1 V/DIV, 10 ns/DIV

– FL Board –

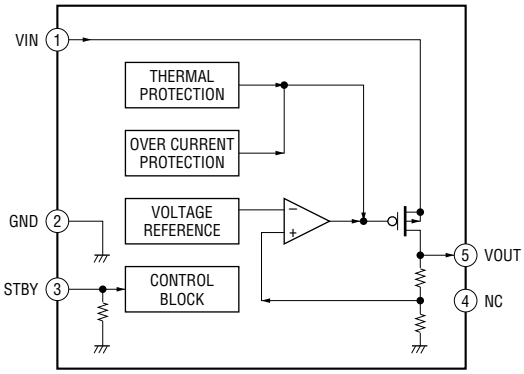
(41) IC901 ⑤ (DSC)



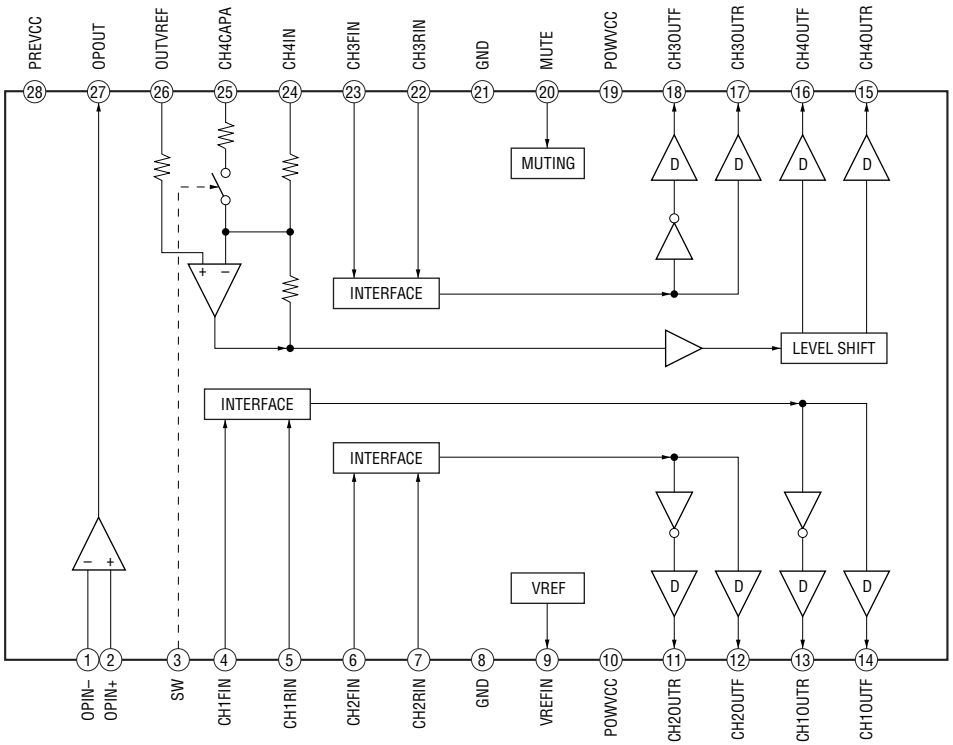
500 mV/DIV, 1 µs/DIV

• **IC Block Diagrams**
– CD Board –

IC203 BH18LB1WG-TR

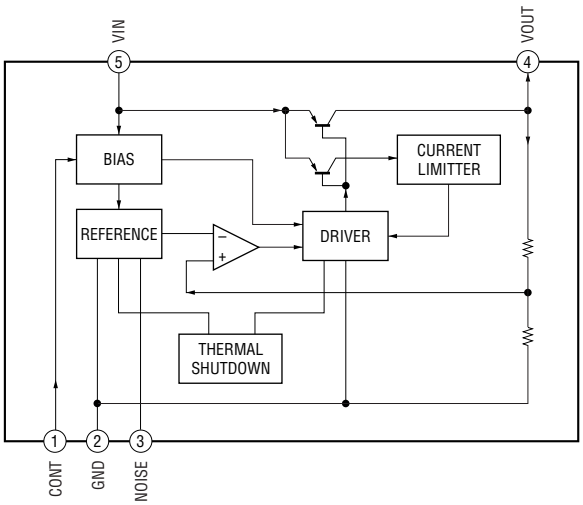


IC402 BA5947FM-E2

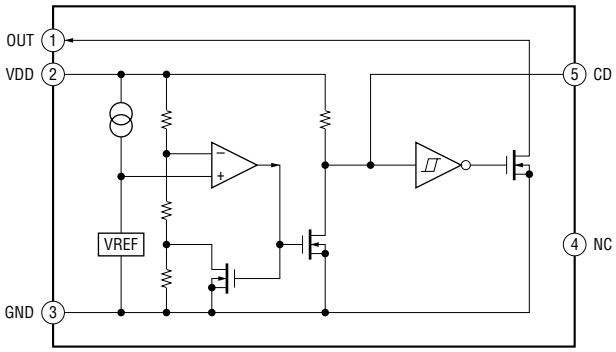


– MAIN Board –

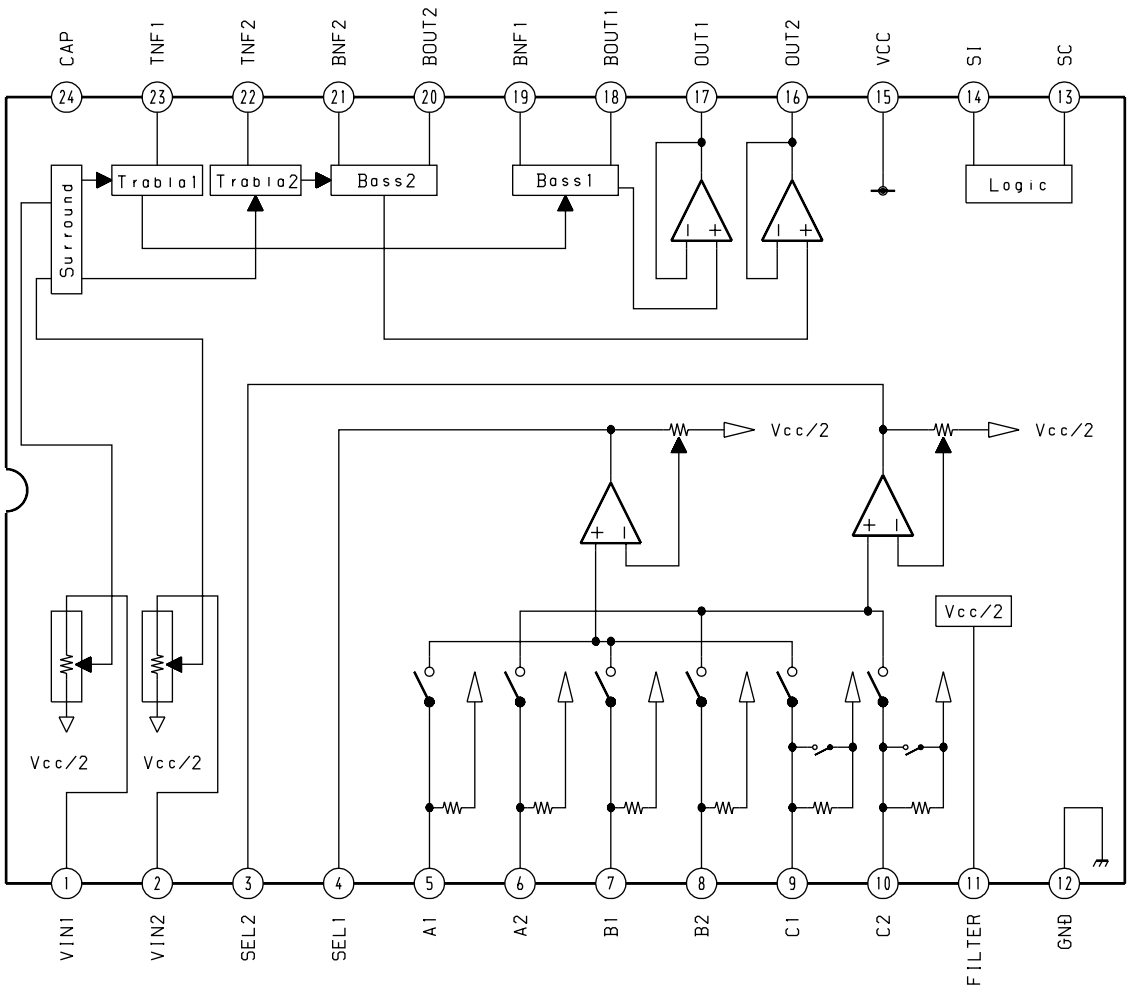
IC1204 MM1615ANLE



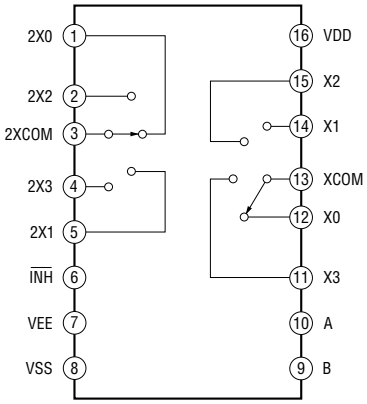
IC1302 PST3629NR



IC1501 BD3870FS-E2

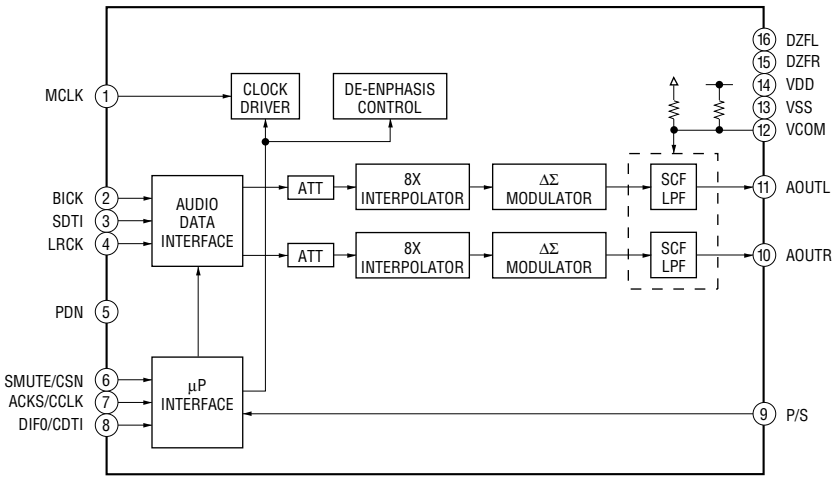


IC1505 MC14052BDTR2



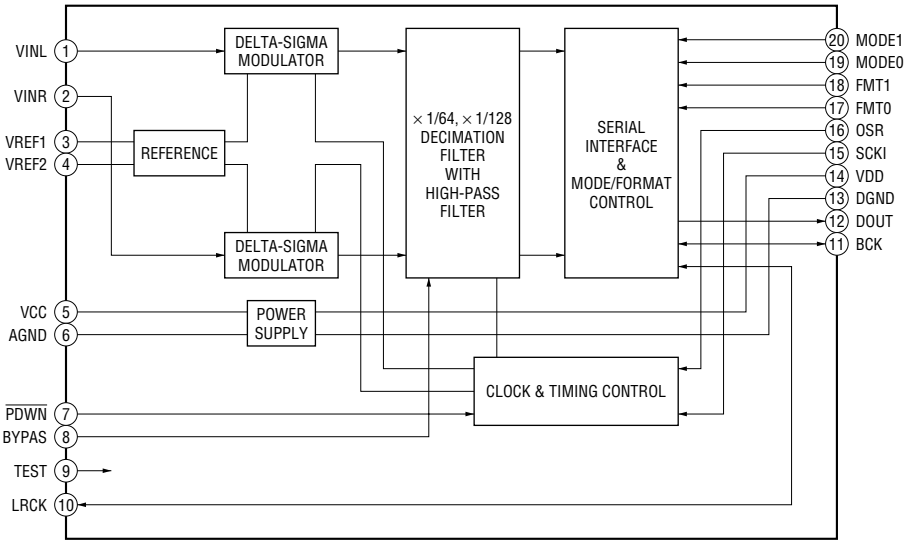
– XM Board –

IC041 AK4384ET-E2

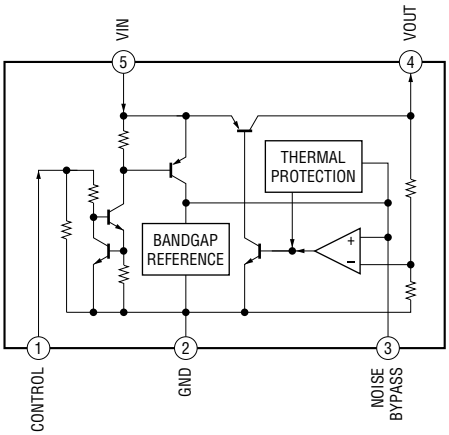


– AMP Board –

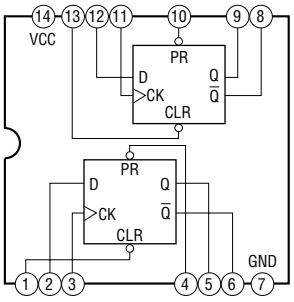
IC701 PCM1803DBR



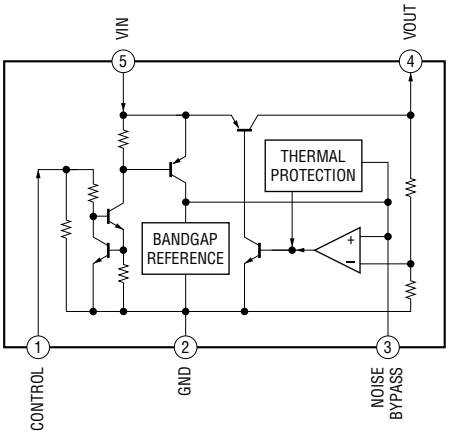
IC702 NJM2871BF33-TE2



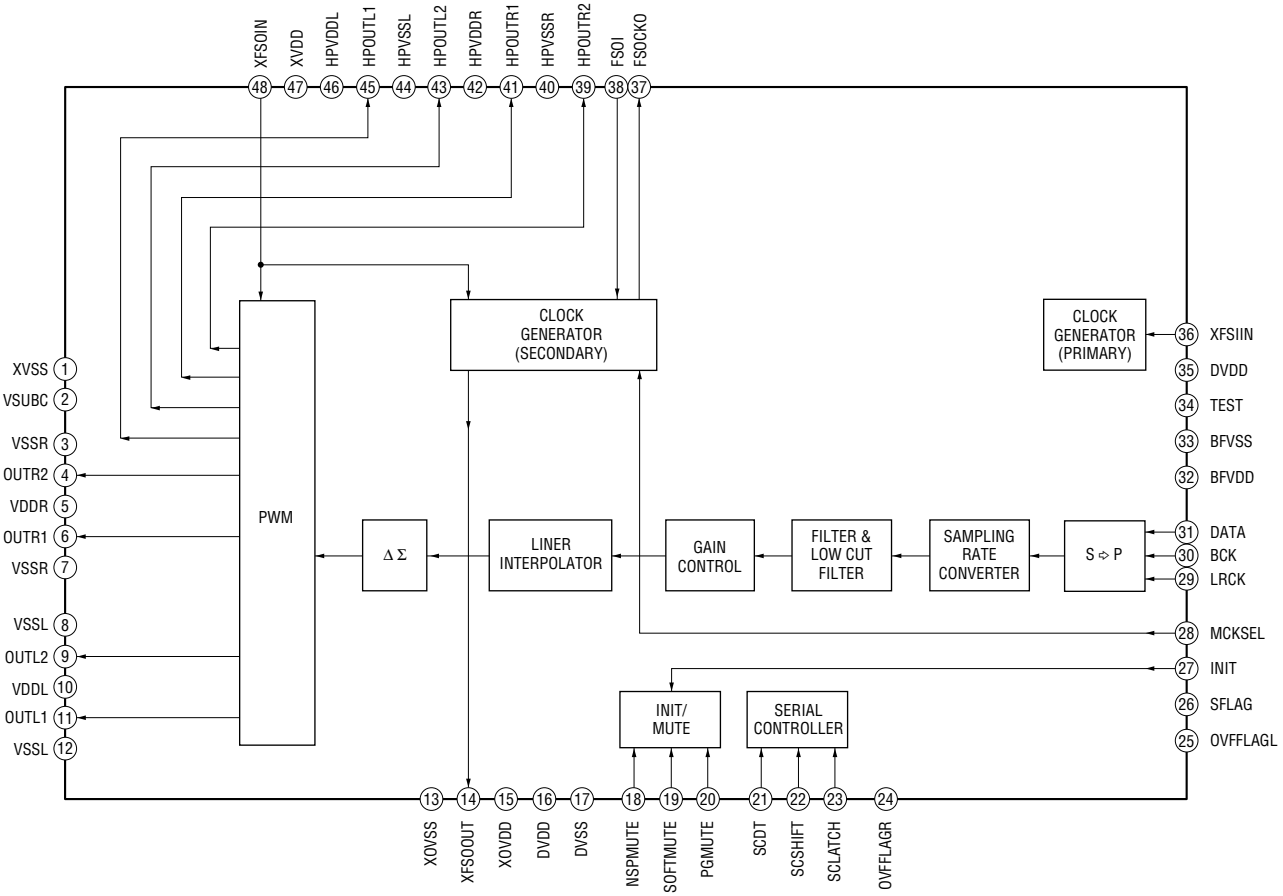
IC703 MC74VHC74DTR2



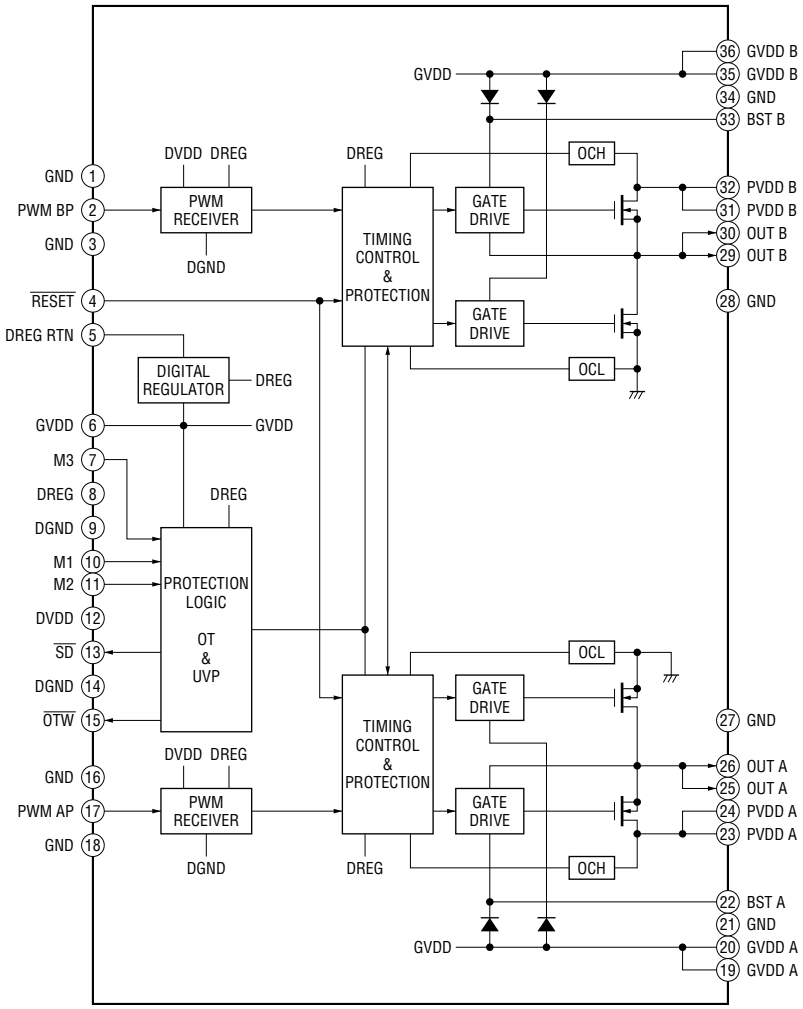
IC704 NJM2871BF18-TE2



IC705 CXD9788AR

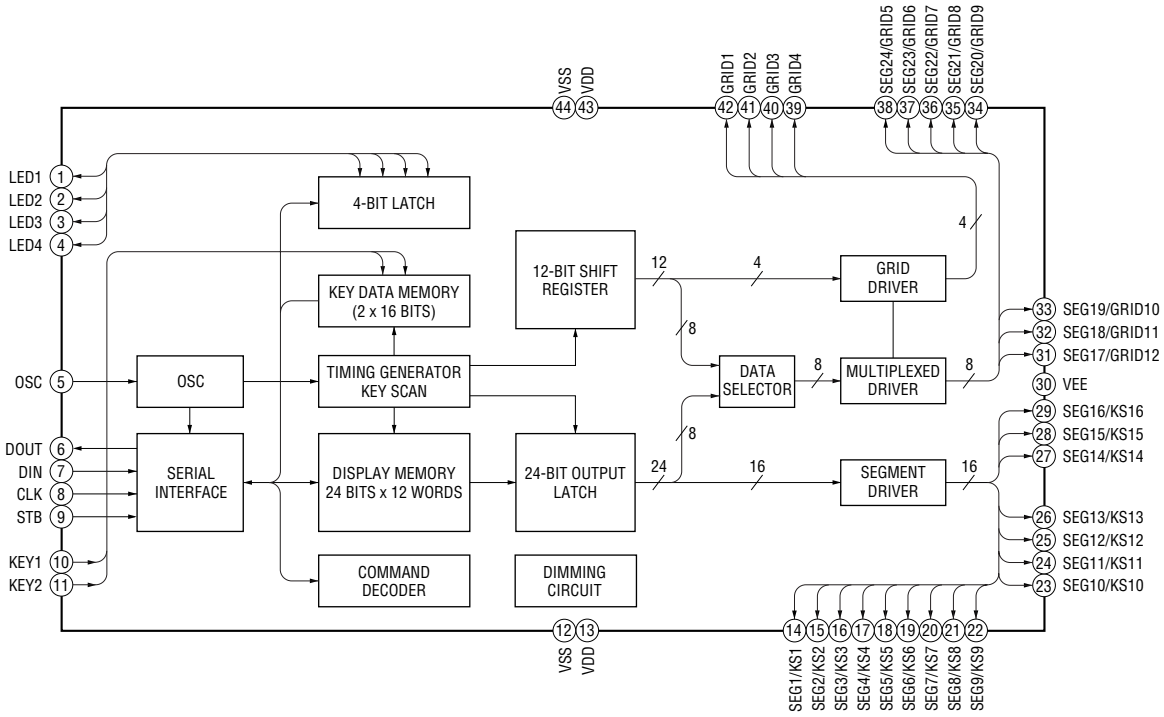


IC707, 708 CXD9774M



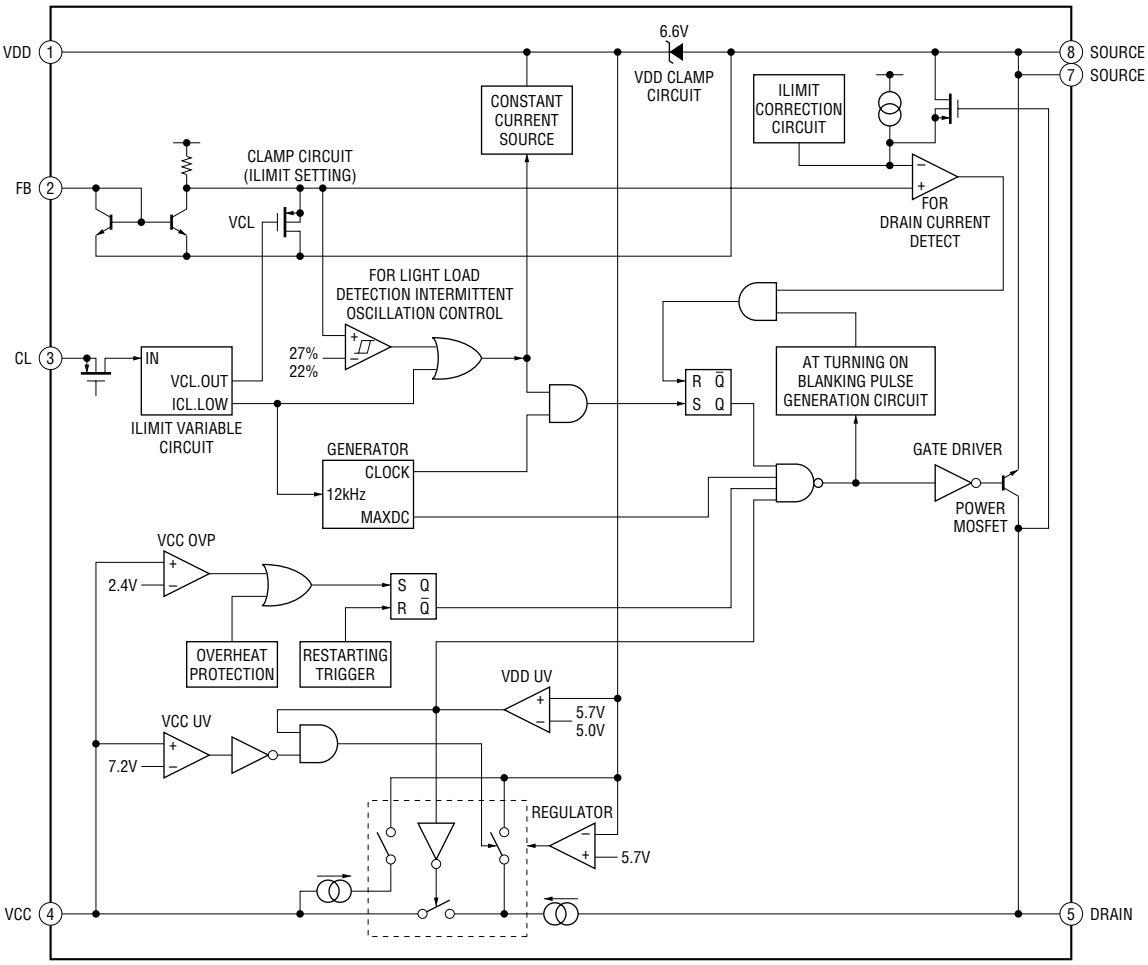
– FL Board –

IC901 µPD16315GB-3BS



– POWER Board –

IC601 MIP2F20MS1SO



- **IC Pin Function Description**

CD BOARD IC201 CXD3014A-201R (CD DSP)

Pin No.	Pin Name	I/O	Description
1	LRCK	O	L/R sampling clock signal output terminal
2	LRCKI	I	L/R sampling clock signal input terminal
3	PCMD	O	Serial data output terminal
4	PCMDI	I	Serial data input terminal
5	BCK	O	Bit clock signal output terminal
6	BCKI	I	Bit clock signal input terminal
7	XTACN	I	Oscillation circuit on/off control signal input from the system controller "L": oscillation stop, "H": self-oscillation
8	XRST	I	System reset signal input from the system controller "L": reset
9	VSS	-	Ground terminal
10	IREQ-MP3	O	MP3 data request signal output to the system controller
11	CLOK	I	CD serial data transfer clock signal input from the system controller
12	DATA2	I	MP3 serial data input from the system controller
13	XLAT-MP3	I	MP3 serial data latch pulse signal input from the system controller
14	REQ-MP3	I	MP3 data request signal input from the system controller
15	ACK-MP3	O	MP3 acknowledge signal output to the system controller
16	XLAT	I	CD serial data latch pulse signal input from the system controller
17	VDD	-	Power supply terminal (+1.8V)
18	SVSS	-	Ground terminal
19	SVDD	-	Power supply terminal (+1.8V)
20	SENS	O	Internal status (SENSE) signal output to the system controller
21	WFCK	O	Write frame clock signal output terminal Not used
22	XUGF	O	XUGF signal output terminal Not used
23	XPCK	O	XPCK signal output terminal Not used
24	GFS	O	Guard frame sync signal output terminal Not used
25	C2PO	O	C2 pointer signal output terminal Not used
26	SCOR	O	Subcode sync (S0+S1) detection signal output to the system controller
27	VDD	-	Power supply terminal (+1.8V)
28	COUT	O	Numbers of track counted signal output terminal Not used
29	SVSS	-	Ground terminal
30	SVDD	-	Power supply terminal (+1.8V)
31	MIRR	O	Mirror signal output terminal Not used
32	DFCT	O	Defect signal output terminal Not used
33	FOK	O	Focus OK signal output terminal Not used
34	VSS	-	Ground terminal
35	VDD	-	Power supply terminal (+1.8V)
36	VSS	-	Ground terminal
37	LOCK	O	GFS is sampled by 460 Hz "H" output when GFS is "H" Not used
38	MDP	O	Spindle motor servo control signal output terminal
39	SSTP	I	Disc inner position detection signal input terminal
40	IOVSS1	-	Ground terminal
41	SFDR	O	Sled servo drive signal (+) output terminal
42	SRDR	O	Sled servo drive signal (-) output terminal
43	TFDR	O	Tracking servo drive signal (+) output terminal
44	TRDR	O	Tracking servo drive signal (-) output terminal
45	FFDR	O	Focus servo drive signal (+) output terminal

Pin No.	Pin Name	I/O	Description
46	FRDR	O	Focus servo drive signal (-) output terminal
47	IOVDD1	-	Power supply terminal (+3.3V)
48	AVDD0	-	Power supply terminal (+3.3V)
49	AVSS0	-	Ground terminal
50	E	I	E signal input from the optical pick-up block
51	F	I	F signal input from the optical pick-up block
52	TEI	I	Tracking error signal input terminal
53	TEO	O	Tracking error signal output terminal
54	FEI	I	Focus error signal input terminal
55	FEO	O	Focus error signal output terminal
56	VC	O	Middle point voltage output terminal
57	A	I	A signal input from the optical pick-up block
58	B	I	B signal input from the optical pick-up block
59	C	I	C signal input from the optical pick-up block
60	D	I	D signal input from the optical pick-up block
61	AVDD4	-	Power supply terminal (+3.3V)
62	RFDCO	O	RFDC signal output terminal Not used
63	PDSENS	I	Reference voltage input terminal for PD
64	AC_SUM	O	RFAC summing amplifier signal output terminal
65	EQ_IN	I	RF equalizer circuit input terminal
66	LD	O	Laser diode on/off control signal output to the automatic power control circuit "H": laser diode on
67	PD	I	Light amount monitor input from the laser diode of optical pick-up block
68	RFC	I	Equalizer cut off frequency adjustment terminal
69	AVSS4	-	Ground terminal
70	RFACO	O	EFM signal output terminal
71	RFACI	I	EFM signal input terminal
72	AVDD3	-	Power supply terminal (+3.3V)
73	BIAS	I	Asymmetry circuit constant current input terminal
74	ASYI	I	Playback EFM asymmetry comparator voltage input terminal
75	ASYO	O	Playback EFM full-swing output terminal
76	VPCO	O	Charge pump output terminal for broad-band EFM PLL
77	VCTL	I	VCO2 control voltage input terminal for broad-band EFM PLL
78	AVSS3	-	Ground terminal
79	CLTV	I	VCO1 control voltage input terminal for multiplier
80	FILO	O	Filter output terminal for master PLL
81	FILI	I	Filter input terminal for master PLL
82	PCO	O	Charge pump output terminal for master PLL
83	SVSS	-	Ground terminal
84	SVDD	-	Power supply terminal (+1.8V)
85	SSTB-MP3	I	MP3 standby on/off control signal input terminal "L": standby Not used
86	VDD	-	Power supply terminal (+1.8V)
87	VSS	-	Ground terminal
88	TEST1	I	Input terminal for the test Normally: fixed at "L"
89	DATA	I	CD serial data input from the system controller
90	CLK2	I	MP3 serial data transfer clock signal input from the system controller
91	SVSS	-	Ground terminal

Pin No.	Pin Name	I/O	Description
92	SVDD	-	Power supply terminal (+2.5V)
93	JTAGTCK	I	Clock signal input terminal (for JTAG) Not used
94	JTAGTDI	I	Data input terminal (for JTAG) Not used
95	JTAGTDO	O	Data output terminal (for JTAG) Not used
96	JTAGTMS	I	Mode select signal input terminal (for JTAG) Not used
97	TRST	I	Reset signal input terminal (for JTAG) Not used
98	VSS	-	Ground terminal
99	VDD	-	Power supply terminal (+1.8V)
100	IOVDD2	-	Power supply terminal (+3.3V)
101	DOUT	O	Digital audio signal output terminal Not used
102	TEST	I	Input terminal for the test Normally: fixed at "L"
103	TES1	I	Input terminal for the test Normally: fixed at "L"
104	IOVSS2	-	Ground terminal
105	PLLVDD	-	Power supply terminal (+1.8V)
106	PLLVSS	-	Ground terminal
107	XVSS	-	Ground terminal
108	XTAO	O	System clock output terminal (16.9344 MHz)
109	XTAI	I	System clock input terminal (16.9344 MHz)
110	XVDD	-	Power supply terminal (+1.8V)
111	AVDD1	-	Power supply terminal (+3.3V)
112	AOUT1	O	L-ch analog audio signal output terminal
113	VREFL	O	L-ch reference voltage output terminal
114	AVSS1	-	Ground terminal
115	AVSS2	-	Ground terminal
116	VREFR	O	R-ch reference voltage output terminal
117	AOUT2	O	R-ch analog audio signal output terminal
118	AVDD2	-	Power supply terminal (+3.3V)
119	IOVDD0	-	Power supply terminal (+3.3V)
120	IOVSS0	-	Ground terminal

MAIN BOARD IC1301 M30622MEP-A39FPU0 (SYSTEM CONTROLLER) (HPR90)
M30624MGP-A58FPU0 (SYSTEM CONTROLLER) (HPR99XM)

Pin No.	Pin Name	I/O	Description
1	FL SD	O	Serial data output to the fluorescent indicator tube driver
2	FL SCK	O	Serial data transfer clock signal output to the fluorescent indicator tube driver
3	FL STB	O	Serial interface strobe signal output to the fluorescent indicator tube driver
4	SIRCS	I	SIRCS signal input from the remote control receiver
5	MP3 DATA OUT	O	MP3 serial data output to the CD DSP
6	MP3 DATA IN	I	MP3 serial data input terminal
7	MP3 CLK	O	MP3 serial data transfer clock signal output to the CD DSP
8	BYTE	I	External data bus width selection signal input terminal
9	CNVSS	I	Processor mode switch input terminal (for test)
10	XCIN	I	Sub system clock input terminal (32.768 kHz)
11	XCOUT	O	Sub system clock output terminal (32.768 kHz)
12	RESET	I	System reset signal input from the reset signal generator "L": reset For several hundreds msec. after the power supply rises, "L" is input, then it changes to "H"
13	XOUT	O	Main system clock output terminal (5 MHz)
14	VSS	-	Ground terminal
15	XIN	I	Main system clock input terminal (5 MHz)
16	VCC	-	Power supply terminal (+3.3V)
17	NMI	I	Non-maskable interrupt signal input terminal Not used
18	RDS INT/ XM DTIC IRQ	I	Interrupt request signal input from the XM receiver (HPR99XM)
19	CD SCOR	I	Subcode sync (S0+S1) detection signal input from the CD DSP
20	AC CUT	I	AC cut on/off detection signal input terminal "L": AC cut on
21	RDS DATA/ XM DTIC RST	O	Reset signal output to the XM receiver (HPR99XM)
22	DLM5B DISC SENS	I	Disc sensor signal input terminal
23	SW8	I	Disc table open detection switch input terminal
24	SW7	I	Disc chucking detection switch input terminal
25	SW6	I	Disc table close detection switch input terminal
26	SW5	I	Disc stocking detection switch input terminal
27	DLM5B E0	I	Cam position detection switch input terminal
28	E3/SW3	I	Cam position detection switch input terminal
29	IIC CLK	I	IIC data reading clock signal input terminal Not used
30	IIC DATA	I	IIC data input terminal Not used
31	XM TXD	O	Serial data output to the XM receiver (HPR99XM)
32	XM RXD	I	Serial data input from the XM receiver (HPR99XM)
33	E1/SW2	I	Cam position detection switch input terminal
34	E2/SW1	I	Cam position detection switch input terminal
35	CD DATA	O	CD serial data output to the CD DSP
36	CD SENS	I	Internal status (SENSE) signal input from the CD DSP
37	CD CLK	O	CD serial data transfer clock signal output to the CD DSP
38	CDM SD	I	CD mechanism power protect on/off detection signal input terminal "H": protect on
39	M2+	O	Cam gear motor control signal output terminal (forward direction)
40	M2-	O	Cam gear motor control signal output terminal (reverse direction)
41	M1+	O	Loading motor control signal output terminal (forward direction)
42	M1-	O	Loading motor control signal output terminal (reverse direction)

Pin No.	Pin Name	I/O	Description
43	CD XLT	O	CD serial data latch pulse signal output to the CD DSP
44	MP3 ACK	I	MP3 acknowledge signal input from the CD DSP
45	MP3 REQ	O	MP3 data request signal output to the CD DSP
46	MP3 XLAT	O	MP3 serial data latch pulse signal output to the CD DSP
47	MP3 IREQ	I	MP3 data request signal input from the CD DSP
48	CD XRST	O	System reset signal output to the CD DSP "L": reset
49	CD XATCN	O	Oscillation circuit on/off control signal output to the CD DSP "L": oscillation stop, "H": self-oscillation
50	CD DRIVER MUTE	O	Muting signal output to the motor/coil driver
51	SEL A	O	Control signal output to the function selector
52	ST TUNED	I	Tuning detection signal input terminal Not used
53	ST CE	O	Chip enable signal output to the tuner (FM/AM)
54	ST DOUT	O	Serial data output to the tuner (FM/AM)
55	ST CLK	O	Serial data transfer clock signal output to the tuner (FM/AM)
56	ST DIN/STEREO	I	Serial data and stereo detection signal input from the tuner (FM/AM)
57	POWER ON/OFF	O	Sub power on/off relay drive signal output terminal "H": power on
58	HP MUTE	O	Headphone muting on/off control signal output terminal "H": muting on
59	SEL B	O	Control signal output to the function selector
60	LINE MUTE	O	Line muting on/off control signal output terminal "H": muting on
61	AMP SI	O	Serial data output to the electrical volume
62	VCC	-	Power supply terminal (+3.3V)
63	AMP SC	O	Serial data transfer clock signal output to the electrical volume
64	VSS	-	Ground terminal
65	SEL INH	O	Control signal output to the function selector
66	S-MASTER PG MUTE	O	PG muting control signal output to the stream processor
67	S-MASTER SOFT MUTE	O	Soft muting control signal output to the stream processor
68	S-MASTER RST	O	System reset signal output to the digital power amplifier "L": reset
69	S-MASTER SD	O	Shut down signal input from the digital power amplifier "L": shut down
70	S-MASTER DATA	O	Serial data output to the stream processor
71	S-MASTER SHIFT	O	Serial data transfer clock signal output to the stream processor
72	S-MASTER LATCH	O	Serial data latch pulse signal output to the stream processor
73	NSP MUTE	O	NSP muting control signal output to the stream processor
74	WAKE UP KEY	I	Wake up signal input terminal
75	S-MASTER INIT	O	Initialize signal output to the stream processor
76 to 80	-	-	Not used
81	NO USE	O	Not used
82	XM POWER 3.3V	O	Power on/off control signal output terminal for the XM circuit (HPR99XM)
83	XM POWER 5V	O	Power on/off control signal output terminal for the XM circuit (HPR99XM)
84	AC DET	I	AC power detection signal input terminal
85	XM DTIC CMD	O	Command mode select signal output to the XM receiver (HPR99XM)
86	EEPROM SDA	I	Serial data input from the EEPROM
87	EEPROM SCL	I	Serial data transfer clock signal input from the EEPROM
88	STANDBY LED	O	LED drive signal output terminal for STANDBY indicator "H": LED on
89, 90	-	-	Not used
91 to 93	KEY3 to KEY1	I	Front panel key input terminal (A/D input)
94	VOLUME	I	Jog dial pulse input from the rotary encoder (VOLUME) (A/D input)

Pin No.	Pin Name	I/O	Description
95	JOG	I	Jog dial pulse input from the rotary encoder (jog) (A/D input)
96	AVSS	-	Ground terminal
97	SPEC IN	I	Setting terminal for the model and destination
98	VREF	I	Reference voltage (+3.3V) input terminal
99	AVCC	-	Power supply terminal (+3.3V)
100	AUDIO IN DETECT	I	Audio in plug insert detection signal input terminal "H": audio in plug insert

XM BOARD IC001 F2602E-01-TR (XM RECEIVER) (HPR99XM)

Pin No.	Pin Name	I/O	Description
1	LSDP_TXRX	-	Not used
2	VSS	-	Ground terminal
3	SC_XT_OUT	O	Serial data output to the system controller
4	VDD	-	Power supply terminal (+3.3V)
5	SC_RX_IN	I	Serial data input from the system controller
6	VSS	-	Ground terminal
7	CDM_SEL	I	Command mode select signal input from the system controller
8	VDD	-	Power supply terminal (+3.3V)
9	ERR_IRQ#	O	Interrupt request signal output to the system controller
10	VSS	-	Ground terminal
11	RST#	I	Reset signal input from the system controller
12	SLAVE_SET	I	Master/slave mode setting terminal "L": Master mode, "H": Slave mode Fixed at "L" in this set
13	COMM_RX_DIG	-	Not used
14	COMM_TX_DIG	-	Not used
15	COMM_TX_EN	-	Not used
16	VSS	-	Ground terminal
17	VDD	-	Power supply terminal (+3.3V)
18	CDMM_RX_P	I	XM receiver differential signal (positive) input terminal
19	CDMM_RX_M	I	XM receiver differential signal (negative) input terminal
20	VDD	-	Power supply terminal (+3.3V)
21	VSS	-	Ground terminal
22	CDMM_TX_M	O	XM transmitter differential signal (negative) output terminal
23	CDMM_TX_P	O	XM transmitter differential signal (positive) output terminal
24, 25	VSS	-	Ground terminal
26	OSC_OUT	O	System clock output terminal (45.158 MHz)
27	VSS	-	Ground terminal
28	OSC_IN	I	System clock input terminal (45.158 MHz)
29	VSS	-	Ground terminal
30	TEST	-	Not used
31	VSS	-	Ground terminal
32	HSDP_DATA	-	Not used
33	VSS	-	Ground terminal
34	HSDP_CLK	-	Not used
35	VDD	-	Power supply terminal (+3.3V)
36	HSDP_EN	-	Not used
37	I2S_DA	O	I2S digital audio data output terminal
38	VSS	-	Ground terminal
39	I2S_CLK	O	I2S bit clock signal output terminal
40	VDD	-	Power supply terminal (+3.3V)
41	I2S_LRCLK	O	I2S L/R sampling clock signal output terminal
42	VSS	-	Ground terminal
43	I2S_OCLK	O	I2S over sample clock signal output terminal
44	VSS	-	Ground terminal
45	SAII_CLK	-	Not used
46	VDD	-	Power supply terminal (+3.3V)
47	SAII_DA	-	Not used
48	SAII_EN	-	Not used

POWER BOARD IC11 CXD9841P (POWER CONTROL)

Pin No.	Pin Name	I/O	Description
1	VSENSE	I	AC line voltage detection signal input terminal
2	F/B	I	Feed back signal input terminal for frequency modulation of oscillator
3	CT	I	Connected to the external capacitor for oscillator duty/frequency setting
4	RT	I	Connected to the external resistor for oscillator frequency setting
5	GND	-	Ground terminal
6	TIMER	I	Connected to the external capacitor for determines intermittent operation period when abnormal detection state
7	SS	I	Connected to the external capacitor for soft start timing
8	VC1	I	Power supply terminal for control circuit "L": stop
9	OCP	I	Over current detection signal and didt protection signal input terminal
10	VC2	O	Power supply output terminal for driver
11	PGND	-	Ground terminal for low voltage side driver
12	VG (L)	O	Low voltage side driver drive signal output terminal
13	-	-	Not used
14	VG	O	Power supply output terminal for high voltage side driver
15	VS	I	High voltage side driver reference voltage input terminal
16	VG (H)	O	High voltage side driver drive signal output terminal
17	-	-	Not used
18	VD	I	Terminal for drain-kick starting When starting, current is supplied directly from the rectification diode to VC1

SECTION 7
EXPLODED VIEWS

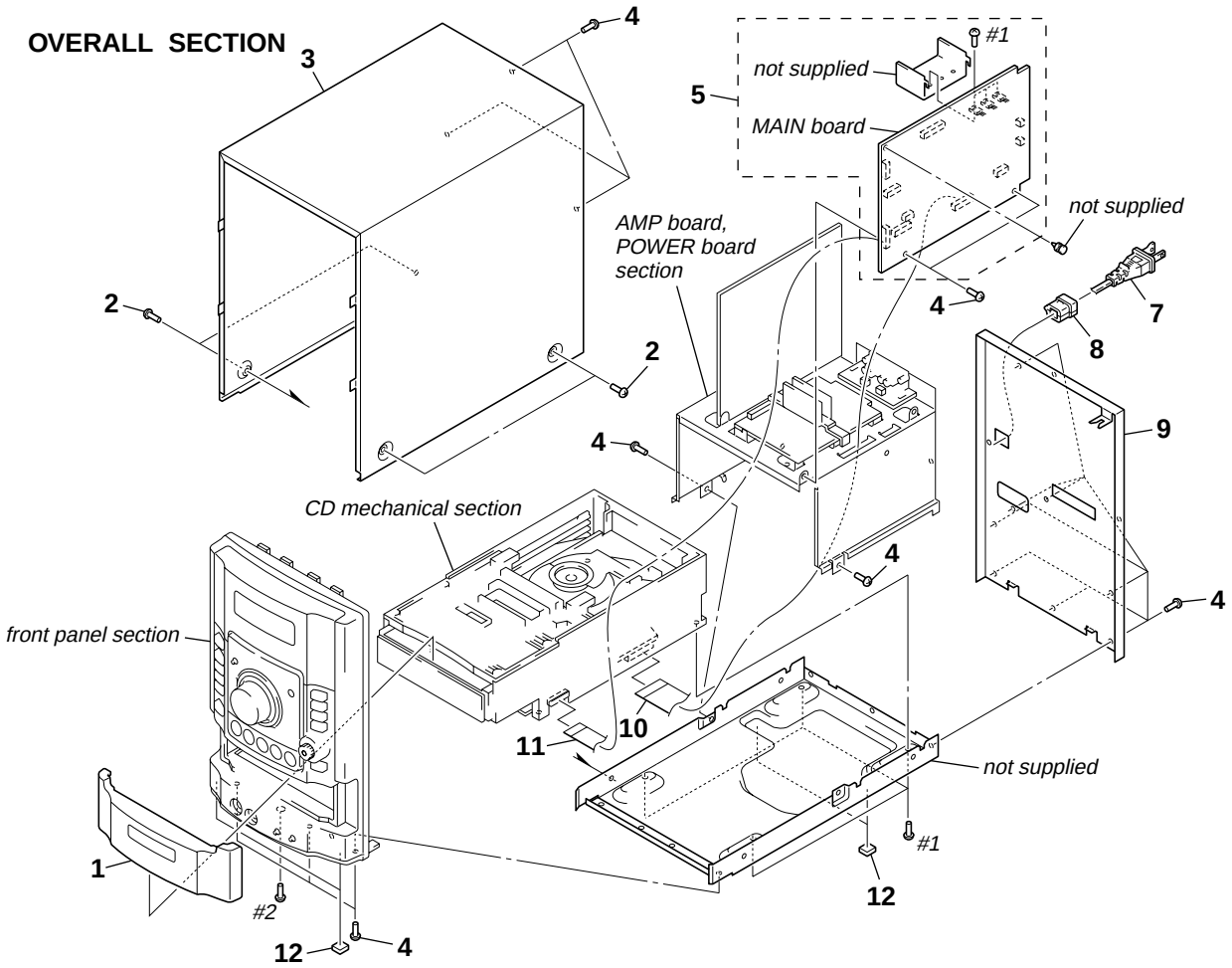
NOTE:

- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Color Indication of Appearance Parts
  Example:
  KNOB, BALANCE (WHITE) . . . (RED)
  ↑ ↑
  Parts Color Cabinet's Color
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  CND : Canadian model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  SP : Singapore model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- The mechanical parts with no reference number in the exploded views are not supplied.
- Accessories are given in the last of the electrical parts list.

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

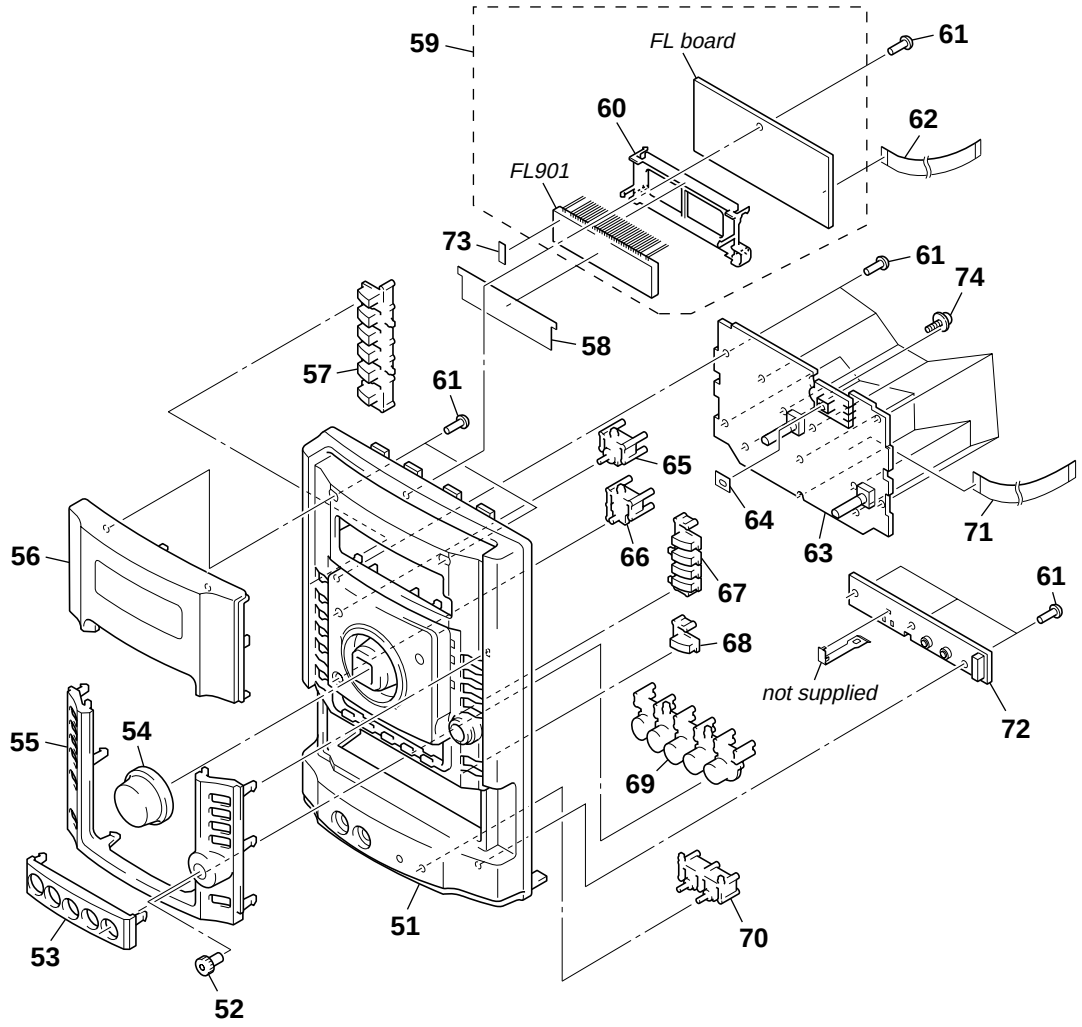
Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

7-1. OVERALL SECTION



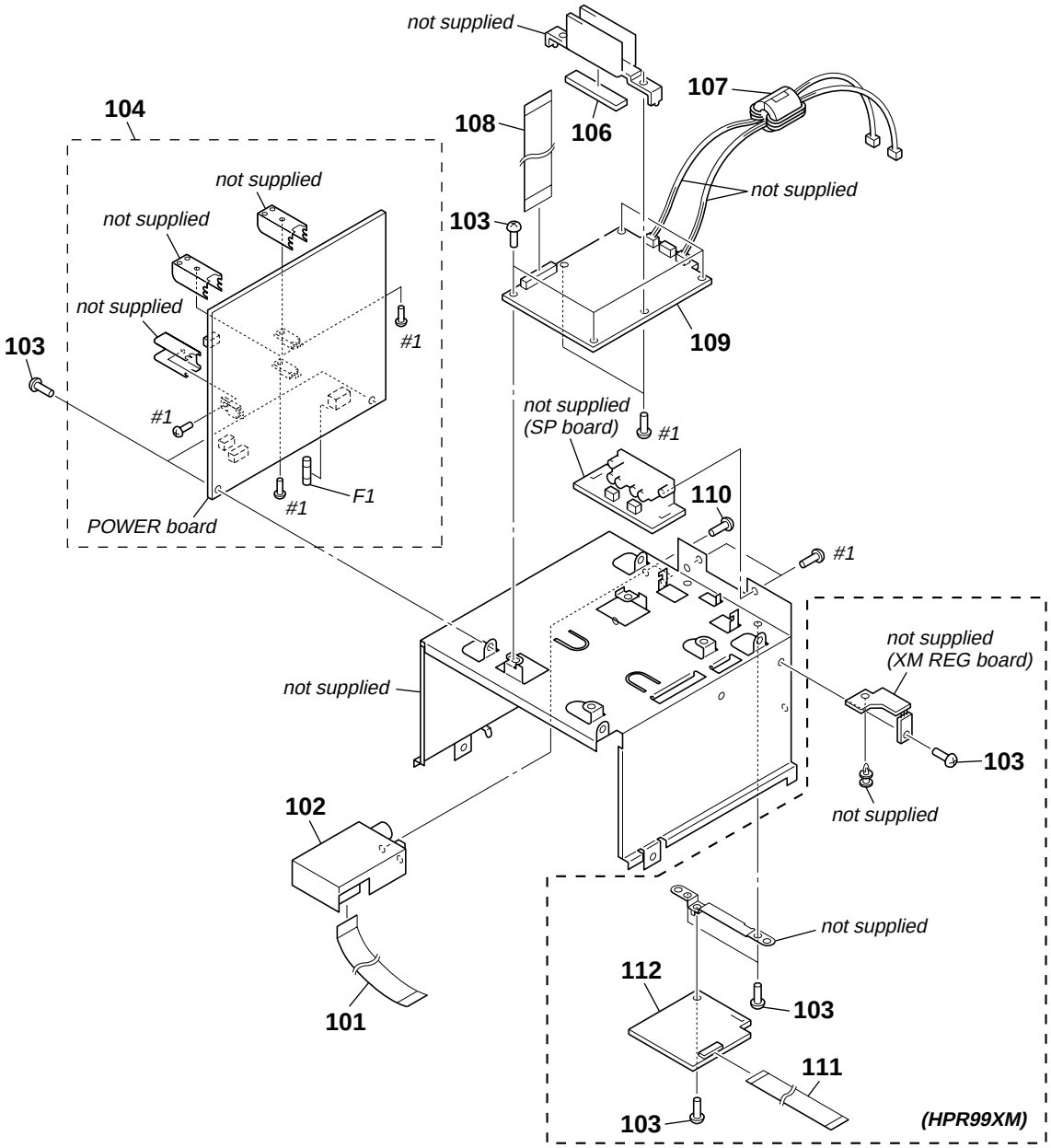
Ref. No.	Part No.	Description	Remark
1	2-660-769-01	LID (CD) (HPR90: US, CND/HPR99XM)	
1	2-660-769-11	LID (CD) (HPR90: E, E51, MX, SP, AR, AUS)	
2	3-363-099-11	SCREW (CASE 3 TP2)	
3	2-659-063-02	CASE	
4	3-252-829-01	SCREW (B3), (+) BV TAPPING	
5	A-1167-363-A	MAIN BOARD, COMPLETE (HPR90: US, CND)	
5	A-1167-403-A	MAIN BOARD, COMPLETE (HPR99XM)	
5	A-1171-432-A	MAIN BOARD, COMPLETE (HPR90: E, E51)	
5	A-1171-456-A	MAIN BOARD, COMPLETE (HPR90: AR)	
5	A-1171-473-A	MAIN BOARD, COMPLETE (HPR90: SP, AUS)	
5	A-1173-202-A	MAIN BOARD, COMPLETE (HPR90: MX)	
⚠7	1-775-790-71	CORD, POWER (HPR90: AUS)	
⚠7	1-827-226-31	CORD, POWER (HPR90: E, MX)	
⚠7	1-829-387-11	CORD, POWER (HPR90: AR)	
⚠7	1-830-188-11	CORD, POWER (HPR90: E51, SP)	
⚠7	1-830-190-11	CORD, POWER (HPR90: US, CND/HPR99XM)	
8	3-703-244-00	BUSHING (2104), CORD (HPR90: US, CND, E51, SP, AR, AUS/HPR99XM)	
* 8	3-703-571-12	BUSHING (S) (4516), CORD (HPR90: E, MX)	
9	2-670-257-01	PANEL, BACK (HPR90: US)	
9	2-670-257-11	PANEL, BACK (HPR90: CND)	
9	2-670-257-21	PANEL, BACK (HPR90: E)	
9	2-670-257-31	PANEL, BACK (HPR90: MX)	
9	2-670-257-41	PANEL, BACK (HPR90: E51)	
9	2-670-257-51	PANEL, BACK (HPR90: AR)	
9	2-670-257-61	PANEL, BACK (HPR90: SP)	
9	2-670-257-71	PANEL, BACK (HPR90: AUS)	
9	2-670-258-01	PANEL, BACK (HPR99XM: US)	
9	2-670-258-11	PANEL, BACK (HPR99XM: CND)	
10	1-832-438-21	CABLE, FLEXIBLE FLAT (23 CORE)	
11	1-832-847-21	CABLE, FLEXIBLE FLAT (15 CORE)	
12	4-233-372-02	FOOT (FELT)	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	
#2	7-685-871-01	SCREW +BVTT 3X6 (S)	

7-2. FRONT PANEL SECTION



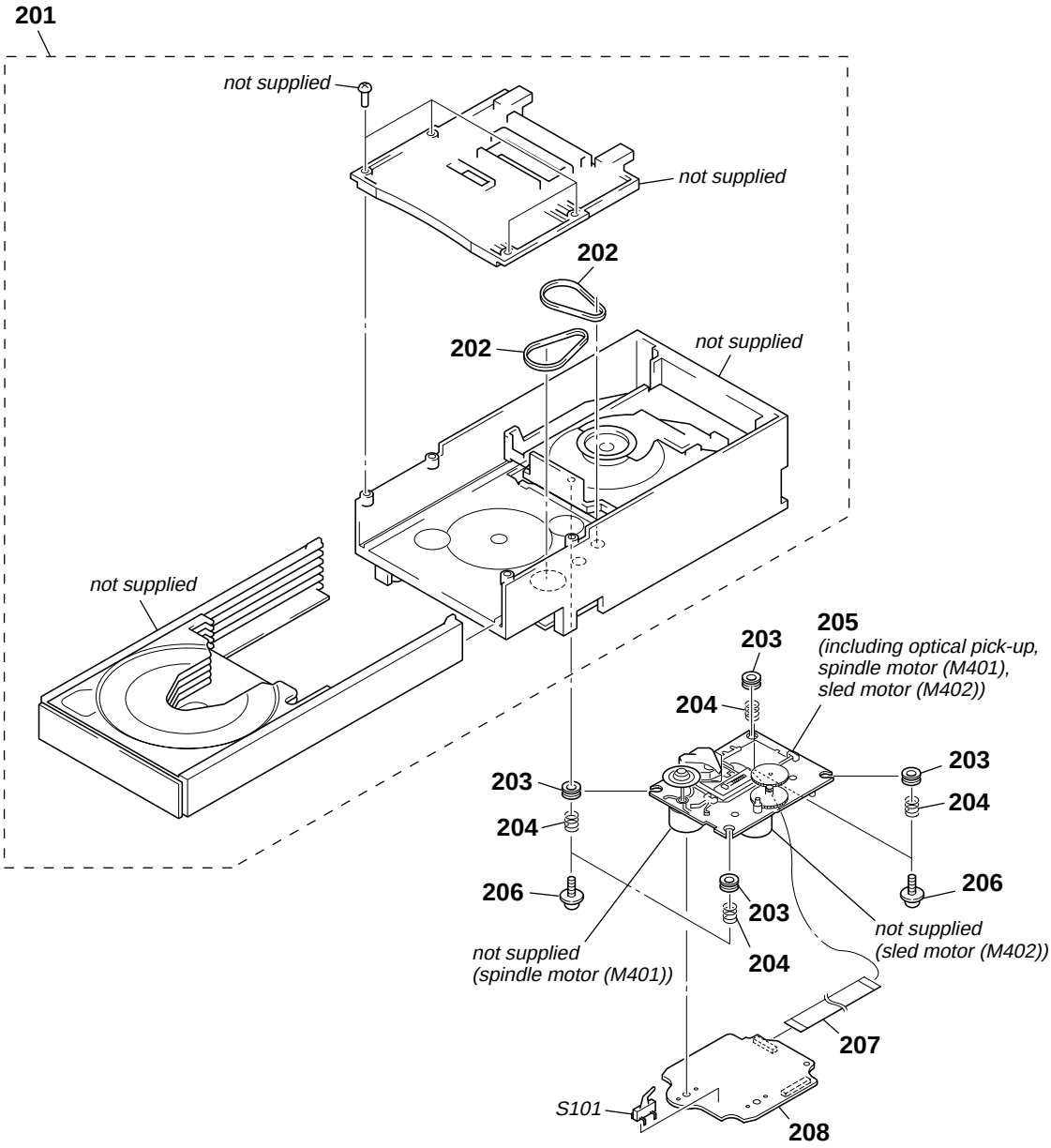
Ref. No.	Part No.	Description	Remark
51	X-2109-290-2	PANEL ASSY, FRONT (HPR90: US/HPR99XM: US)	
51	X-2109-293-2	PANEL ASSY, FRONT (HPR90: CND, E, E51, MX, SP, AR, AUS/HPR99XM: CND)	
52	2-660-784-01	KNOB (JOG)	
53	2-660-780-01	COVER (DISC)	
54	2-660-783-01	KNOB (VOL)	
55	X-2109-292-1	COVER (MAIN) ASSY	
56	2-660-768-01	WINDOW (FL) (HPR90)	
56	2-660-768-11	WINDOW (FL) (HPR99XM)	
57	2-660-776-01	BUTTON (POWER)(I/⏻, CD ▶II, TUNER/BAND, AUDIO IN, ■ CANCEL, DISC SKIP/EX-CHANGE)	
58	2-659-054-01	FILTER (FL)	
59	A-1167-360-A	FL BOARD, COMPLETE	
60	2-659-053-01	HOLDER (FL)	
61	4-951-620-01	SCREW (2.6X8), +BVTP	
62	1-832-437-21	CABLE, FLEXIBLE FLAT (9 CORE)	
63	A-1167-361-A	PANEL BOARD, COMPLETE	
64	2-681-451-01	SHEET (RM)	
65	2-660-770-01	BUTTON (DISPLAY)	
66	X-2109-291-1	BUTTON (DSGX) ASSY	
67	2-660-777-01	BUTTON (DIR) (▶▶ ▷▷I TUNING +, I◁◁ I◀◀ TUNING –, 📁+, 📁–) (HPR90)	
67	2-660-777-11	BUTTON (DIR) (▶▶ ▷▷I TUNING +, I◁◁ I◀◀ TUNING –, 📁+ CAT +, 📁– CAT –) (HPR99XM)	
68	2-660-778-01	BUTTON (EJECT) (⏏)	
69	X-2109-768-1	BUTTON (CAP) ASSY (DISC 1, DISC 2, DISC 3, DISC 4, DISC 5)	
70	2-660-774-01	BUTTON (PLAY MODE)	
71	1-831-781-21	CABLE, FLEXIBLE FLAT (11 CORE)	
72	A-1167-362-A	HP A-IN BOARD, COMPLETE	
73	3-842-929-01	SPACER, KNOB	
74	3-252-828-01	SCREW (B 2.6), (+) PWH TAPPING	
FL901	1-519-874-11	INDICATOR TUBE, FLUORESCENT	

7-3. AMP BOARD, POWER BOARD SECTION



Ref. No.	Part No.	Description	Remark
101	1-832-435-21	CABLE, FLEXIBLE FLAT (9 CORE)	
102	1-693-711-11	TUNER (FM/AM) (HPR90: E, E51, MX, SP, AR, AUS)	
102	1-693-713-11	TUNER (FM/AM) (HPR90: US, CND/HPR99XM)	
103	3-252-829-01	SCREW (B3), (+) BV TAPPING	
104	A-1167-367-A	POWER BOARD, COMPLETE (HPR90: US, CND/HPR99XM)	
104	A-1171-434-A	POWER BOARD, COMPLETE (HPR90: E, E51)	
104	A-1171-457-A	POWER BOARD, COMPLETE (HPR90: SP, AR, AUS)	
104	A-1173-203-A	POWER BOARD, COMPLETE (HPR90: MX)	
106	2-514-691-01	SHEET, RADIATION	
107	1-400-932-11	FILTER, CLAMP	
108	1-832-866-21	CABLE, FLEXIBLE FLAT (19 CORE)	
109	A-1166-890-A	AMP BOARD, COMPLETE (HPR90)	
109	A-1183-658-A	AMP BOARD, COMPLETE (HPR99XM)	
110	4-951-620-01	SCREW (2.6X8), +BVTP	
111	1-832-844-21	CABLE, FLEXIBLE FLAT (15 CORE) (HPR99XM)	
112	A-1184-933-A	XM BOARD, COMPLETE (HPR99XM)	
⚠F1	1-576-232-51	FUSE (5A/250V)	
#1	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S	

7-4. CD MECHANICAL SECTION (DLM5B)



Ref. No.	Part No.	Description	Remark
201	1-797-409-11	MECHANICAL, CD (DLM5B)	
202	2-632-062-01	BELT (DLM3A)	
203	4-227-549-11	INSULATOR	
204	4-227-045-31	SPRING (INSULATOR), COIL	
⚠205	A-4735-357-A	OPTICAL PICK-UP BLOCK (KSM-213DHAP) (Including optical pick-up,spindle motor (M401), sled motor (M402))	

Ref. No.	Part No.	Description	Remark
206	4-985-672-01	SCREW (+PTPWHM2.6), FLOATING	
207	1-832-404-21	CABLE, FLEXIBLE FLAT (16 CORE)	
208	A-1134-279-A	CD BOARD, COMPLETE	
S101	1-771-853-11	SWITCH, DETECTION (LIMIT)	

SECTION 8
ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  CND : Canadian model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  SP : Singapore model
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA... : µA... uPA... : µPA...
  uPB... : µPB... uPC... : µPC...
  uPD... : µPD...
- CAPACITORS
  uF: µF
- COILS
  uH: µH

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety.
Replace only with part number specified.

Les composants identifiés par une marque ⚠ sont critiquens pour la sécurité.
Ne les remplacer que par une pièce portant le numéro spécifié.

Ref. No.	Part No.	Description			Remark
	A-1166-890-A	AMP BOARD, COMPLETE (HPR90)			
	A-1183-658-A	AMP BOARD, COMPLETE (HPR99XM)			
		**********			
		< CAPACITOR >			
C701	1-126-961-11	ELECT	2.2uF	20%	50V
C702	1-136-497-11	FILM	0.1uF	5%	50V
C703	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C704	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C706	1-100-717-11	CERAMIC CHIP	1uF		16V
C708	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C709	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C710	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C711	1-126-934-11	ELECT	220uF	20%	16V
C712	1-100-717-11	CERAMIC CHIP	1uF		16V
C713	1-100-756-91	CERAMIC CHIP	0.047uF		50V
C714	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C715	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C716	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C717	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C718	1-100-756-91	CERAMIC CHIP	0.047uF		50V
C719	1-100-924-21	ELECT	2200uF	20%	35V
C720	1-131-704-11	FILM	1uF	5%	50V
C722	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C723	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C724	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C725	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C726	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C728	1-131-704-11	FILM	1uF	5%	50V
C730	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C731	1-104-665-11	ELECT	100uF	20%	25V
C732	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C733	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C734	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C735	1-126-964-11	ELECT	10uF	20%	50V
C736	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C737	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C738	1-126-964-11	ELECT	10uF	20%	50V
C739	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C740	1-126-934-11	ELECT	220uF	20%	16V
C741	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C742	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C743	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C744	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C745	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C746	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C747	1-104-665-11	ELECT	100uF	20%	25V
C748	1-126-964-11	ELECT	10uF	20%	50V
C749	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C751	1-126-961-11	ELECT	2.2uF	20%	50V
C752	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C753	1-104-665-11	ELECT	100uF	20%	25V
C754	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C756	1-100-717-11	CERAMIC CHIP	1uF		16V
C757	1-162-923-11	CERAMIC CHIP	47PF	5%	50V
C758	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C759	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C761	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C762	1-100-717-11	CERAMIC CHIP	1uF		16V
C763	1-100-756-91	CERAMIC CHIP	0.047uF		50V
C764	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C765	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C766	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C767	1-125-898-11	CERAMIC CHIP	0.22uF	10%	50V
C768	1-100-756-91	CERAMIC CHIP	0.047uF		50V
C769	1-100-924-21	ELECT	2200uF	20%	35V
C770	1-131-704-11	FILM	1uF	5%	50V
C772	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C773	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C774	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C775	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
C777	1-131-704-11	FILM	1uF	5%	50V
C778	1-125-838-11	CERAMIC CHIP	2.2uF	10%	6.3V
C779	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C780	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C781	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C782	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C783	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C784	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C785	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C786	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C787	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C788	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C791	1-136-497-11	FILM	0.1uF	5%	50V
C793	1-126-964-11	ELECT	10uF	20%	50V
C794	1-125-837-11	CERAMIC CHIP	1uF	10%	6.3V
C795	1-126-964-11	ELECT	10uF	20%	50V

Ref. No.	Part No.	Description			Remark
C796	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C797	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C798	1-126-964-11	ELECT	10uF	20%	50V
C799	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C804	1-163-205-00	CERAMIC CHIP	0.001uF	10%	50V
C806	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C831	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V (HPR90)
C832	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V (HPR90)
C844	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C845	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C846	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
C847	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
		< CONNECTOR >			
CN700	1-784-780-11	CONNECTOR, FFC 19P			
		< DIODE >			
D701	6-501-193-01	DIODE 1SS355WTE-17			
D705	6-500-260-01	DIODE P6SMB39AT3			
D706	6-500-260-01	DIODE P6SMB39AT3			
D713	6-501-159-01	DIODE UDZW-TE17-2.4B			
D751	6-501-193-01	DIODE 1SS355WTE-17			
D755	6-500-260-01	DIODE P6SMB39AT3			
D756	6-500-260-01	DIODE P6SMB39AT3			
		< EARTH TERMINAL >			
EP701	1-537-771-21	TERMINAL BOARD, GROUND			
EP702	1-537-771-21	TERMINAL BOARD, GROUND			
EP703	1-537-771-21	TERMINAL BOARD, GROUND			
		< IC >			
IC701	6-707-608-01	IC PCM1803DBR			
IC702	6-708-637-01	IC NJM2871BF33-TE2			
IC703	6-701-261-01	IC MC74VHC74DTR2			
IC704	6-707-956-01	IC NJM2871BF18-TE2			
IC705	6-705-979-01	IC CXD9788AR			
IC707	6-704-802-01	IC CXD9774M			
IC708	6-704-802-01	IC CXD9774M			
IC709	6-701-189-01	IC MC74VHC1GU04DFT1			
		< COIL >			
L701	1-469-967-21	INDUCTOR	10uH		
L702	1-469-967-21	INDUCTOR	10uH		
L703	1-469-967-21	INDUCTOR	10uH		
L704	1-469-967-21	INDUCTOR	10uH		
L705	1-412-939-11	INDUCTOR	1uH		
L708	1-456-813-11	COIL, AIR-CORE			
L709	1-456-813-11	COIL, AIR-CORE			
L710	1-456-680-11	COIL, CHOKE	10uH		
L711	1-456-680-11	COIL, CHOKE	10uH		
L758	1-456-813-11	COIL, AIR-CORE			
L759	1-456-813-11	COIL, AIR-CORE			
L760	1-456-680-11	COIL, CHOKE	10uH		
L761	1-456-680-11	COIL, CHOKE	10uH		

Ref. No.	Part No.	Description			Remark
		< TRANSISTOR >			
Q701	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q702	8-729-600-22	TRANSISTOR	2SA1235-F		
Q703	8-729-600-22	TRANSISTOR	2SA1235-F		
Q752	8-729-600-22	TRANSISTOR	2SA1235-F		
Q753	8-729-600-22	TRANSISTOR	2SA1235-F		
		< RESISTOR >			
R701	1-216-809-11	METAL CHIP	100	5%	1/10W
R704	1-216-817-11	METAL CHIP	470	5%	1/10W
R706	1-216-809-11	METAL CHIP	100	5%	1/10W
R708	1-216-809-11	METAL CHIP	100	5%	1/10W
R709	1-216-809-11	METAL CHIP	100	5%	1/10W
R711	1-216-809-11	METAL CHIP	100	5%	1/10W
R712	1-216-809-11	METAL CHIP	100	5%	1/10W
R713	1-216-837-11	METAL CHIP	22K	5%	1/10W
R714	1-216-816-11	METAL CHIP	390	5%	1/10W
R715	1-216-821-11	METAL CHIP	1K	5%	1/10W
R716	1-216-821-11	METAL CHIP	1K	5%	1/10W
R717	1-216-821-11	METAL CHIP	1K	5%	1/10W
R718	1-216-833-11	METAL CHIP	10K	5%	1/10W
R719	1-220-942-11	METAL CHIP	3.3	1%	1/4W
R720	1-220-942-11	METAL CHIP	3.3	1%	1/4W
R721	1-216-833-11	METAL CHIP	10K	5%	1/10W
R722	1-216-841-11	METAL CHIP	47K	5%	1/10W
R723	1-216-821-11	METAL CHIP	1K	5%	1/10W
R724	1-216-793-11	METAL CHIP	4.7	5%	1/10W
R725	1-216-793-11	METAL CHIP	4.7	5%	1/10W
R726	1-216-849-11	METAL CHIP	220K	5%	1/10W
R727	1-216-845-11	METAL CHIP	100K	5%	1/10W
R728	1-216-849-11	METAL CHIP	220K	5%	1/10W
R729	1-216-821-11	METAL CHIP	1K	5%	1/10W
R730	1-216-809-11	METAL CHIP	100	5%	1/10W
R731	1-216-817-11	METAL CHIP	470	5%	1/10W
R733	1-216-817-11	METAL CHIP	470	5%	1/10W
R734	1-216-797-11	METAL CHIP	10	5%	1/10W
R735	1-216-797-11	METAL CHIP	10	5%	1/10W
R736	1-216-797-11	METAL CHIP	10	5%	1/10W
R737	1-216-797-11	METAL CHIP	10	5%	1/10W
R738	1-216-821-11	METAL CHIP	1K	5%	1/10W
R739	1-216-833-11	METAL CHIP	10K	5%	1/10W
R740	1-216-833-11	METAL CHIP	10K	5%	1/10W
R741	1-216-809-11	METAL CHIP	100	5%	1/10W
R742	1-216-833-11	METAL CHIP	10K	5%	1/10W
R743	1-216-809-11	METAL CHIP	100	5%	1/10W
R744	1-216-864-11	SHORT CHIP	0		
R745	1-216-809-11	METAL CHIP	100	5%	1/10W
R746	1-216-809-11	METAL CHIP	100	5%	1/10W
R747	1-216-817-11	METAL CHIP	470	5%	1/10W
R748	1-216-841-11	METAL CHIP	47K	5%	1/10W
R749	1-216-864-11	SHORT CHIP	0		
R750	1-216-841-11	METAL CHIP	47K	5%	1/10W
R751	1-216-809-11	METAL CHIP	100	5%	1/10W
R752	1-216-837-11	METAL CHIP	22K	5%	1/10W
R754	1-216-816-11	METAL CHIP	390	5%	1/10W
R756	1-216-809-11	METAL CHIP	100	5%	1/10W
R758	1-216-809-11	METAL CHIP	100	5%	1/10W
R759	1-216-809-11	METAL CHIP	100	5%	1/10W

AMP **CD**

Ref. No.	Part No.	Description			Remark
R761	1-216-809-11	METAL CHIP	100	5%	1/10W
R762	1-216-809-11	METAL CHIP	100	5%	1/10W
R764	1-216-817-11	METAL CHIP	470	5%	1/10W
R765	1-216-864-11	SHORT CHIP	0		
R768	1-216-833-11	METAL CHIP	10K	5%	1/10W
R769	1-220-942-11	METAL CHIP	3.3	1%	1/4W
R770	1-220-942-11	METAL CHIP	3.3	1%	1/4W
R771	1-216-833-11	METAL CHIP	10K	5%	1/10W
R772	1-216-833-11	METAL CHIP	10K	5%	1/10W
R773	1-216-833-11	METAL CHIP	10K	5%	1/10W
R774	1-216-793-11	METAL CHIP	4.7	5%	1/10W
R775	1-216-793-11	METAL CHIP	4.7	5%	1/10W
R776	1-216-849-11	METAL CHIP	220K	5%	1/10W
R777	1-216-845-11	METAL CHIP	100K	5%	1/10W
R778	1-216-849-11	METAL CHIP	220K	5%	1/10W
R780	1-216-801-11	METAL CHIP	22	5%	1/10W
R781	1-216-809-11	METAL CHIP	100	5%	1/10W
R782	1-216-857-11	METAL CHIP	1M	5%	1/10W
R783	1-216-801-11	METAL CHIP	22	5%	1/10W
R784	1-216-809-11	METAL CHIP	100	5%	1/10W
R785	1-216-809-11	METAL CHIP	100	5%	1/10W
R786	1-216-809-11	METAL CHIP	100	5%	1/10W
R787	1-216-809-11	METAL CHIP	100	5%	1/10W
R788	1-216-809-11	METAL CHIP	100	5%	1/10W
R789	1-216-809-11	METAL CHIP	100	5%	1/10W
R790	1-216-809-11	METAL CHIP	100	5%	1/10W
R792	1-216-864-11	SHORT CHIP	0		
R793	1-216-841-11	METAL CHIP	47K	5%	1/10W
R794	1-216-864-11	SHORT CHIP	0		
R795	1-216-864-11	SHORT CHIP	0		
R800	1-216-821-11	METAL CHIP	1K	5%	1/10W
R801	1-216-821-11	METAL CHIP	1K	5%	1/10W
		< VIBRATOR >			
X702	1-795-660-21	QUARTZ CRYSTAL UNIT (49.152MHz)			
**********					
	A-1134-279-A	CD BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C101	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C102	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C103	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C104	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C105	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C107	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C108	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C109	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C110	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C111	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C112	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C113	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C201	1-128-995-21	ELECT CHIP	100uF	20%	10V
C202	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C203	1-128-995-21	ELECT CHIP	100uF	20%	10V
C204	1-164-360-11	CERAMIC CHIP	0.1uF		16V

Ref. No.	Part No.	Description			Remark
C205	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C206	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C207	1-128-995-21	ELECT CHIP	100uF	20%	10V
C208	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C210	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C213	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C214	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C215	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C217	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C218	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C219	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C220	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C221	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C222	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C223	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C224	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C226	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C227	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C230	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C232	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C251	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C252	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C253	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C254	1-162-968-11	CERAMIC CHIP	0.0047uF	10%	50V
C256	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C257	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C258	1-164-230-11	CERAMIC CHIP	220PF	5%	50V
C260	1-117-863-11	CERAMIC CHIP	0.47uF	10%	6.3V
C261	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
C264	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C265	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C266	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C267	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C268	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C271	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C272	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C273	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C274	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C275	1-162-910-11	CERAMIC CHIP	5PF	0.25PF	50V
C276	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C277	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C291	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C292	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C301	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C303	1-137-710-11	CERAMIC CHIP	10uF	20%	6.3V
C304	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C321	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C322	1-165-908-11	CERAMIC CHIP	1uF	10%	10V
C323	1-128-995-21	ELECT CHIP	100uF	20%	10V
C401	1-128-394-11	ELECT CHIP	220uF	20%	10V
C404	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C405	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C406	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C424	1-164-360-11	CERAMIC CHIP	0.1uF		16V
C451	1-165-176-11	CERAMIC CHIP	0.047uF	10%	16V

Ref. No.	Part No.	Description			Remark
		< CONNECTOR >			
CN102	1-770-706-21	CONNECTOR, FFC/FPC 23P			
CN301	1-770-425-51	CONNECTOR, FFC/FPC 16P			
		< IC >			
IC201	8-753-246-30	IC CXD3014A-201R			
IC203	6-709-050-01	IC BH18LB1WG-TR			
IC402	6-705-808-01	IC BA5947FM-E2			
		< TRANSISTOR >			
Q321	6-551-120-01	TRANSISTOR	2SA2119K		
		< RESISTOR/FERRITE BEAD >			
R101	1-216-809-11	METAL CHIP	100	5%	1/10W
R102	1-216-809-11	METAL CHIP	100	5%	1/10W
R103	1-216-809-11	METAL CHIP	100	5%	1/10W
R104	1-216-809-11	METAL CHIP	100	5%	1/10W
R105	1-216-809-11	METAL CHIP	100	5%	1/10W
R107	1-216-809-11	METAL CHIP	100	5%	1/10W
R108	1-216-809-11	METAL CHIP	100	5%	1/10W
R109	1-216-809-11	METAL CHIP	100	5%	1/10W
R110	1-216-809-11	METAL CHIP	100	5%	1/10W
R111	1-216-809-11	METAL CHIP	100	5%	1/10W
R112	1-216-809-11	METAL CHIP	100	5%	1/10W
R113	1-216-809-11	METAL CHIP	100	5%	1/10W
R201	1-216-295-00	SHORT CHIP	0		
R202	1-216-295-00	SHORT CHIP	0		
R203	1-500-445-21	FERRITE, EMI (SMD) (2012)			
R207	1-216-295-00	SHORT CHIP	0		
R250	1-216-857-11	METAL CHIP	1M	5%	1/10W
R252	1-216-833-11	METAL CHIP	10K	5%	1/10W
R253	1-216-821-11	METAL CHIP	1K	5%	1/10W
R254	1-216-833-11	METAL CHIP	10K	5%	1/10W
R255	1-216-821-11	METAL CHIP	1K	5%	1/10W
R256	1-216-837-11	METAL CHIP	22K	5%	1/10W
R257	1-216-845-11	METAL CHIP	100K	5%	1/10W
R258	1-216-849-11	METAL CHIP	220K	5%	1/10W
R260	1-216-864-11	SHORT CHIP	0		
R265	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R266	1-216-821-11	METAL CHIP	1K	5%	1/10W
R267	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R268	1-216-833-11	METAL CHIP	10K	5%	1/10W
R270	1-216-821-11	METAL CHIP	1K	5%	1/10W
R271	1-216-857-11	METAL CHIP	1M	5%	1/10W
R275	1-216-809-11	METAL CHIP	100	5%	1/10W
R276	1-216-841-11	METAL CHIP	47K	5%	1/10W
R277	1-216-809-11	METAL CHIP	100	5%	1/10W
R278	1-216-809-11	METAL CHIP	100	5%	1/10W
R280	1-216-864-11	SHORT CHIP	0		
R291	1-216-809-11	METAL CHIP	100	5%	1/10W
R292	1-216-809-11	METAL CHIP	100	5%	1/10W
R321	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R322	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R323	1-216-864-11	SHORT CHIP	0		
R324	1-216-845-11	METAL CHIP	100K	5%	1/10W
R401	1-216-295-00	SHORT CHIP	0		
R421	1-216-864-11	SHORT CHIP	0		
R423	1-216-833-11	METAL CHIP	10K	5%	1/10W
R451	1-216-837-11	METAL CHIP	22K	5%	1/10W
R452	1-216-833-11	METAL CHIP	10K	5%	1/10W
		< VIBRATOR >			
X201	1-795-101-21	VIBRATOR, CERAMIC (16.9344MHz)			
**********					
	A-1167-360-A	FL BOARD, COMPLETE			
		**********			
	2-659-053-01	HOLDER (FL)			
		< CAPACITOR >			
C903	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C907	1-162-971-11	CERAMIC CHIP	0.001uF	10%	50V
C908	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C909	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C912	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C913	1-126-514-11	ELECT	22uF	20%	16V
C921	1-126-514-11	ELECT	22uF	20%	16V
C922	1-136-153-00	FILM	0.01uF	5%	50V
C925	1-162-974-11	CERAMIC CHIP	0.01uF		50V
C926	1-119-943-11	ELECT	47uF	20%	50V
C927	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C931	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C932	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C933	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C934	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C935	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C936	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C937	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C938	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C939	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C940	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C941	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C942	1-162-927-11	CERAMIC CHIP	100PF	5%	50V
C944	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
		< DIODE >			
D921	6-500-848-01	DIODE MC2840-T112-1			
D922	6-500-848-01	DIODE MC2840-T112-1			
D925	8-719-069-56	DIODE UDZSTE-176.2B			
		< FLUORESCENT INDICATOR >			
FL901	1-519-874-11	INDICATOR TUBE, FLUORESCENT			
		< IC >			
IC901	8-759-643-83	IC uPD16315GB-3BS			
		< COIL >			
L921	1-410-671-31	INDUCTOR	47uH		
		< TRANSISTOR >			
Q921	8-729-055-50	TRANSISTOR	2SC4357-T11-1E		
Q922	8-729-055-50	TRANSISTOR	2SC4357-T11-1E		

Ref. No.	Part No.	Description			Remark
		< RESISTOR >			
R901	1-216-809-11	METAL CHIP	100	5%	1/10W
R902	1-216-809-11	METAL CHIP	100	5%	1/10W
R905	1-216-845-11	METAL CHIP	100K	5%	1/10W
R906	1-216-853-11	METAL CHIP	470K	5%	1/10W
R907	1-216-809-11	METAL CHIP	100	5%	1/10W
R908	1-216-809-11	METAL CHIP	100	5%	1/10W
R909	1-216-809-11	METAL CHIP	100	5%	1/10W
R910	1-216-845-11	METAL CHIP	100K	5%	1/10W
R911	1-216-845-11	METAL CHIP	100K	5%	1/10W
R921	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R922	1-216-833-11	METAL CHIP	10K	5%	1/10W
R923	1-216-809-11	METAL CHIP	100	5%	1/10W
R924	1-216-809-11	METAL CHIP	100	5%	1/10W
R925	1-216-864-11	SHORT CHIP	0		
R926	1-216-864-11	SHORT CHIP	0		
		< TRANSFORMER >			
T921	1-443-953-11	TRANSFORMER, DC-DC CONVERTER			
**********					
	A-1167-362-A	HP A-IN BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C982	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C984	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C986	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C987	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C989	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C990	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
C997	1-162-962-11	CERAMIC CHIP	470PF	10%	50V
C999	1-164-227-11	CERAMIC CHIP	0.022uF	10%	25V
		< JUMPER RESISTOR >			
FB981	1-216-864-11	SHORT CHIP	0		
FB982	1-216-864-11	SHORT CHIP	0		
FB983	1-216-864-11	SHORT CHIP	0		
		< JACK >			
J981	1-815-603-11	JACK (AUDIO IN)			
J982	1-815-603-11	JACK (PHONES)			
		< RESISTOR >			
R931	1-216-821-11	METAL CHIP	1K	5%	1/10W
R932	1-216-845-11	METAL CHIP	100K	5%	1/10W
R941	1-216-821-11	METAL CHIP	1K	5%	1/10W
R942	1-216-845-11	METAL CHIP	100K	5%	1/10W
R981	1-216-833-11	METAL CHIP	10K	5%	1/10W
R982	1-216-837-11	METAL CHIP	22K	5%	1/10W
R983	1-216-841-11	METAL CHIP	47K	5%	1/10W
		< SWITCH >			
S981	1-762-875-21	SWITCH, KEYBOARD (REPEAT/FM MODE)			
S982	1-762-875-21	SWITCH, KEYBOARD (PLAY MODE/TUNING MODE)			
**********					

Ref. No.	Part No.	Description			Remark
	A-1167-363-A	MAIN BOARD, COMPLETE (HPR90: US, CND)			
	A-1167-403-A	MAIN BOARD, COMPLETE (HPR99XM)			
	A-1171-432-A	MAIN BOARD, COMPLETE (HPR90: E, E51)			
	A-1171-456-A	MAIN BOARD, COMPLETE (HPR90: AR)			
	A-1171-473-A	MAIN BOARD, COMPLETE (HPR90: SP, AUS)			
	A-1173-202-A	MAIN BOARD, COMPLETE (HPR90: MX)			
		**********			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
C1201	1-126-943-11	ELECT	2200uF	20%	25V
C1202	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1203	1-126-935-11	ELECT	470uF	20%	16V
C1204	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1205	1-126-935-11	ELECT	470uF	20%	16V
C1206	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1207	1-126-935-11	ELECT	470uF	20%	16V
C1208	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1209	1-126-934-11	ELECT	220uF	20%	16V
C1211	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1212	1-126-935-11	ELECT	470uF	20%	16V
C1213	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C1214	1-126-935-11	ELECT	470uF	20%	16V
C1217	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C1218	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1301	1-126-916-11	ELECT	1000uF	20%	6.3V
C1310	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1311	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1312	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1316	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1362	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1401	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1402	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1403	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1404	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1501	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1502	1-126-934-11	ELECT	220uF	20%	16V
C1503	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1504	1-126-934-11	ELECT	220uF	20%	16V
C1505	1-126-964-11	ELECT	10uF	20%	50V
C1506	1-164-156-11	CERAMIC CHIP	0.1uF		25V (HPR99XM)
C1507	1-126-933-11	ELECT	100uF	20%	16V (HPR99XM)
C1508	1-126-964-11	ELECT	10uF	20%	50V
C1509	1-126-960-11	ELECT	1uF	20%	50V
C1511	1-126-964-11	ELECT	10uF	20%	50V
C1512	1-126-960-11	ELECT	1uF	20%	50V
C1513	1-126-960-11	ELECT	1uF	20%	50V
C1515	1-126-964-11	ELECT	10uF	20%	50V
C1517	1-126-934-11	ELECT	220uF	20%	16V
C1518	1-130-495-00	MYLAR	0.1uF	5%	50V
C1519	1-130-495-00	MYLAR	0.1uF	5%	50V
C1520	1-130-495-00	MYLAR	0.1uF	5%	50V
C1521	1-130-495-00	MYLAR	0.1uF	5%	50V
C1522	1-130-475-00	MYLAR	0.0022uF	5%	50V
C1523	1-130-475-00	MYLAR	0.0022uF	5%	50V

Ref. No.	Part No.	Description			Remark
C1526	1-126-960-11	ELECT	1uF	20%	50V (HPR99XM)
C1531	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1532	1-126-933-11	ELECT	100uF	20%	16V
C1550	1-126-934-11	ELECT	220uF	20%	16V
C1552	1-126-933-11	ELECT	100uF	20%	16V
C1555	1-126-964-11	ELECT	10uF	20%	50V
C1558	1-126-964-11	ELECT	10uF	20%	50V
C1559	1-126-960-11	ELECT	1uF	20%	50V
C1561	1-126-964-11	ELECT	10uF	20%	50V
C1562	1-126-960-11	ELECT	1uF	20%	50V
C1563	1-126-960-11	ELECT	1uF	20%	50V
C1565	1-126-964-11	ELECT	10uF	20%	50V
C1567	1-126-934-11	ELECT	220uF	20%	16V
C1576	1-126-960-11	ELECT	1uF	20%	50V (HPR99XM)
C1603	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1612	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1613	1-126-934-11	ELECT	220uF	20%	16V
C1614	1-126-960-11	ELECT	1uF	20%	50V (HPR90)
C1614	1-126-964-11	ELECT	10uF	20%	50V (HPR99XM)
C1615	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1616	1-126-934-11	ELECT	220uF	20%	16V
C1628	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1629	1-126-934-11	ELECT	220uF	20%	16V
C1635	1-126-934-11	ELECT	220uF	20%	16V
C1636	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
C1664	1-126-960-11	ELECT	1uF	20%	50V (HPR90)
C1664	1-126-964-11	ELECT	10uF	20%	50V (HPR99XM)
C1665	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN1203	1-815-443-11	PIN, CONNECTOR (PWB) 2P			
CN1205	1-819-131-11	PIN, CONNECTOR 3P (HPR99XM)			
CN1301	1-784-776-11	CONNECTOR, FFC 15P (HPR99XM)			
CN1302	1-784-780-11	CONNECTOR, FFC 19P			
CN1305	1-568-830-11	CONNECTOR, FFC 11P			
CN1306	1-568-828-11	CONNECTOR, FFC 9P			
CN1307	1-815-450-11	PIN, CONNECTOR (PWB) 9P			
CN1308	1-784-776-11	CONNECTOR, FFC 15P			
CN1309	1-779-291-11	CONNECTOR, FFC (LIF (NON-ZIF)) 23P			
CN1310	1-568-828-11	CONNECTOR, FFC 9P			
		< DIODE >			
D1201	8-719-000-07	DIODE MC2836			
D1202	8-719-000-07	DIODE MC2836			
D1203	8-719-000-07	DIODE MC2836			
D1204	8-719-000-07	DIODE MC2836			
D1205	6-501-193-01	DIODE 1SS355WTE-17 (HPR99XM)			
D1206	8-719-063-79	DIODE 1N4002B			
D1207	8-719-063-79	DIODE 1N4002B			
D1208	8-719-063-79	DIODE 1N4002B			
D1209	8-719-063-79	DIODE 1N4002B			
D1210	8-719-063-79	DIODE 1N4002B			
D1211	8-719-063-79	DIODE 1N4002B			
D1212	8-719-063-79	DIODE 1N4002B			
D1213	8-719-063-79	DIODE 1N4002B			
D1303	8-719-000-07	DIODE MC2836			
D1305	6-501-193-01	DIODE 1SS355WTE-17			
		< EARTH TERMINAL >			
EP1201	1-537-771-21	TERMINAL BOARD, GROUND			
EP1202	1-537-771-21	TERMINAL BOARD, GROUND			
		< IC/TRANSISTOR >			
IC1201	8-759-647-17	IC uPC2912HF			
IC1202	8-759-701-59	IC NJM78M09FA			
IC1203	6-703-546-01	IC TA7804LS			
IC1204	6-707-282-01	IC MM1615ANLE			
IC1205	8-759-071-48	IC TA7807S			
IC1301	6-806-303-01	IC M30624MGP-A58FPU0 (HPR99XM)			
IC1301	6-806-619-11	IC M30622MEP-A39FPU0 (HPR90)			
IC1302	6-701-680-01	IC PST3629NR			
IC1501	6-701-824-11	IC BD3870FS-E2			
IC1502	8-759-656-83	IC NJM4580MD- (TE2)			
IC1503	6-551-484-01	TRANSISTOR RT3C55M-TP-1B			
IC1504	6-551-484-01	TRANSISTOR RT3C55M-TP-1B			
IC1505	8-759-430-37	IC MC14052BDTR2 (HPR99XM)			
		< JUMPER RESISTOR >			
JR1001	1-216-864-11	SHORT CHIP 0			
JR1002	1-216-864-11	SHORT CHIP 0			
JR1003	1-216-864-11	SHORT CHIP 0			
JR1004	1-216-864-11	SHORT CHIP 0			
JR1005	1-216-864-11	SHORT CHIP 0			
JR1006	1-216-864-11	SHORT CHIP 0			
JR1007	1-216-864-11	SHORT CHIP 0			
JR1008	1-216-864-11	SHORT CHIP 0			
JR1009	1-216-864-11	SHORT CHIP 0			
JR1010	1-216-864-11	SHORT CHIP 0			
JR1011	1-216-864-11	SHORT CHIP 0			
JR1012	1-216-864-11	SHORT CHIP 0			
JR1013	1-216-864-11	SHORT CHIP 0			
JR1014	1-216-864-11	SHORT CHIP 0			
JR1501	1-216-864-11	SHORT CHIP 0 (HPR90)			
JR1502	1-216-864-11	SHORT CHIP 0 (HPR90)			
JR1503	1-216-864-11	SHORT CHIP 0			
JR1614	1-216-864-11	SHORT CHIP 0			
JR1618	1-216-864-11	SHORT CHIP 0			
		< TRANSISTOR >			
Q1301	8-729-120-28	TRANSISTOR 2SC1623-L5L6			
Q1501	8-729-027-43	TRANSISTOR DTC114EKA-T146			
Q1502	8-729-027-23	TRANSISTOR DTA114EKA-T146			
Q1503	8-729-027-43	TRANSISTOR DTC114EKA-T146			(HPR99XM)
Q1504	8-729-027-43	TRANSISTOR DTC114EKA-T146			(HPR99XM)
Q1505	8-729-027-43	TRANSISTOR DTC114EKA-T146			(HPR99XM)
Q1508	8-729-027-43	TRANSISTOR DTC114EKA-T146			
Q1509	8-729-027-23	TRANSISTOR DTA114EKA-T146			
Q1510	8-729-120-28	TRANSISTOR 2SC1623-L5L6			

MAIN

Ref. No.	Part No.	Description			Remark
Q1601	8-729-027-43	TRANSISTOR	DTC114EKA-T146		(HPR99XM)
Q1602	8-729-600-22	TRANSISTOR	2SA1235-F (HPR99XM)		
Q1606	8-729-600-22	TRANSISTOR	2SA1235-F		
Q1607	8-729-040-76	TRANSISTOR	KTA1273-Y-AT		
Q1608	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q1609	8-729-600-22	TRANSISTOR	2SA1235-F		
Q1610	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1611	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1612	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1613	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1614	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1615	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1616	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1617	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1618	8-729-600-22	TRANSISTOR	2SA1235-F		
		< RESISTOR >			
R1201	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1202	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1203	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1301	1-216-809-11	METAL CHIP	100	5%	1/10W
R1302	1-216-809-11	METAL CHIP	100	5%	1/10W
R1303	1-216-809-11	METAL CHIP	100	5%	1/10W
R1304	1-216-809-11	METAL CHIP	100	5%	1/10W
R1305	1-216-809-11	METAL CHIP	100	5%	1/10W
R1306	1-216-809-11	METAL CHIP	100	5%	1/10W
R1307	1-216-809-11	METAL CHIP	100	5%	1/10W
R1309	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1311	1-216-849-11	METAL CHIP	220K	5%	1/10W
R1313	1-216-864-11	SHORT CHIP	0		
R1316	1-216-864-11	SHORT CHIP	0		
R1318	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1319	1-216-809-11	METAL CHIP	100	5%	1/10W
R1320	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1321	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1322	1-216-809-11	METAL CHIP	100	5%	1/10W
R1323	1-216-809-11	METAL CHIP	100	5%	1/10W
R1324	1-216-809-11	METAL CHIP	100	5%	1/10W
R1325	1-216-809-11	METAL CHIP	100	5%	1/10W
R1326	1-216-809-11	METAL CHIP	100	5%	1/10W
R1327	1-216-809-11	METAL CHIP	100	5%	1/10W
R1328	1-216-809-11	METAL CHIP	100	5%	1/10W
R1331	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1332	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1333	1-216-809-11	METAL CHIP	100	5%	1/10W
R1334	1-216-809-11	METAL CHIP	100	5%	1/10W
R1335	1-216-809-11	METAL CHIP	100	5%	1/10W
R1336	1-216-809-11	METAL CHIP	100	5%	1/10W
R1337	1-216-809-11	METAL CHIP	100	5%	1/10W
R1343	1-216-809-11	METAL CHIP	100	5%	1/10W
R1344	1-216-809-11	METAL CHIP	100	5%	1/10W
R1345	1-216-809-11	METAL CHIP	100	5%	1/10W
R1346	1-216-809-11	METAL CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R1347	1-216-809-11	METAL CHIP	100	5%	1/10W
R1348	1-216-809-11	METAL CHIP	100	5%	1/10W
R1349	1-216-809-11	METAL CHIP	100	5%	1/10W
R1350	1-216-809-11	METAL CHIP	100	5%	1/10W
R1352	1-216-809-11	METAL CHIP	100	5%	1/10W
R1353	1-216-809-11	METAL CHIP	100	5%	1/10W
R1354	1-216-809-11	METAL CHIP	100	5%	1/10W
R1355	1-216-809-11	METAL CHIP	100	5%	1/10W
R1356	1-216-809-11	METAL CHIP	100	5%	1/10W
R1357	1-216-809-11	METAL CHIP	100	5%	1/10W
R1361	1-216-864-11	SHORT CHIP	0		
R1363	1-216-864-11	SHORT CHIP	0		
R1366	1-216-809-11	METAL CHIP	100	5%	1/10W
R1367	1-216-809-11	METAL CHIP	100	5%	1/10W
R1368	1-216-809-11	METAL CHIP	100	5%	1/10W
R1369	1-216-809-11	METAL CHIP	100	5%	1/10W
R1370	1-216-809-11	METAL CHIP	100	5%	1/10W
R1371	1-216-809-11	METAL CHIP	100	5%	1/10W
R1372	1-216-809-11	METAL CHIP	100	5%	1/10W
R1373	1-216-809-11	METAL CHIP	100	5%	1/10W
R1375	1-216-809-11	METAL CHIP	100	5%	1/10W
R1383	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1385	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1388	1-216-809-11	METAL CHIP	100	5%	1/10W
R1391	1-216-809-11	METAL CHIP	100	5%	1/10W
R1392	1-216-809-11	METAL CHIP	100	5%	1/10W
R1393	1-216-809-11	METAL CHIP	100	5%	1/10W
R1394	1-216-809-11	METAL CHIP	100	5%	1/10W
R1395	1-216-809-11	METAL CHIP	100	5%	1/10W
R1397	1-216-829-11	METAL CHIP	4.7K	5%	1/10W (HPR90: US, CND, E, E51, MX, AR/HPR99XM)
R1397	1-216-864-11	SHORT CHIP	0 (HPR90: SP, AUS)		
R1400	1-216-809-11	METAL CHIP	100	5%	1/10W
R1401	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1402	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1412	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1417	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1418	1-216-864-11	SHORT CHIP	0 (HPR90)		
R1420	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1421	1-216-864-11	SHORT CHIP	0 (HPR90)		
R1422	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1423	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1424	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1425	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1426	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1427	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1428	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1429	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1430	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1433	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1434	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1456	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1474	1-216-857-11	METAL CHIP	1M	5%	1/10W
R1486	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1487	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1491	1-216-833-11	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R1492	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1493	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1497	1-216-817-11	METAL CHIP	470	5%	1/10W
			(HPR90: E, E51, MX, AR)		
R1497	1-216-821-11	METAL CHIP	1K	5%	1/10W
			(HPR90: US, CND/HRP99XM)		
R1500	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1501	1-216-813-11	METAL CHIP	220	5%	1/10W
R1502	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1503	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1504	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1505	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1506	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1507	1-216-805-11	METAL CHIP	47	5%	1/10W
R1510	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1511	1-216-833-11	METAL CHIP	10K	5%	1/10W
					(HPR99XM)
R1512	1-216-833-11	METAL CHIP	10K	5%	1/10W
					(HPR99XM)
R1513	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
					(HPR99XM)
R1514	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
					(HPR99XM)
R1515	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1516	1-216-833-11	METAL CHIP	10K	5%	1/10W
					(HPR99XM)
R1518	1-216-849-11	METAL CHIP	220K	5%	1/10W
R1519	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1520	1-216-849-11	METAL CHIP	220K	5%	1/10W
R1521	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1523	1-216-845-11	METAL CHIP	100K	5%	1/10W
					(HPR99XM)
R1525	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1550	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1551	1-216-813-11	METAL CHIP	220	5%	1/10W
R1552	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1553	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1554	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1555	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1556	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1557	1-216-805-11	METAL CHIP	47	5%	1/10W
R1558	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1559	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1560	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1565	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1573	1-216-845-11	METAL CHIP	100K	5%	1/10W
					(HPR99XM)
R1575	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1603	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1604	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1605	1-216-833-11	METAL CHIP	10K	5%	1/10W
					(HPR99XM)
R1606	1-216-821-11	METAL CHIP	1K	5%	1/10W
					(HPR99XM)
R1615	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R1616	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R1619	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1620	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1621	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1622	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1623	1-216-817-11	METAL CHIP	470	5%	1/10W
R1625	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1626	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1627	1-216-817-11	METAL CHIP	470	5%	1/10W
R1628	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1629	1-216-817-11	METAL CHIP	470	5%	1/10W
R1630	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1631	1-216-817-11	METAL CHIP	470	5%	1/10W
R1632	1-216-817-11	METAL CHIP	470	5%	1/10W
R1633	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1634	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1635	1-216-817-11	METAL CHIP	470	5%	1/10W
R1636	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1637	1-216-817-11	METAL CHIP	470	5%	1/10W
R1638	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1639	1-216-817-11	METAL CHIP	470	5%	1/10W
R1640	1-216-817-11	METAL CHIP	470	5%	1/10W
R1641	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1642	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1643	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1644	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1645	1-216-805-11	METAL CHIP	47	5%	1/10W
R1646	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1648	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1674	1-216-864-11	SHORT CHIP	0		
R1692	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1693	1-216-833-11	METAL CHIP	10K	5%	1/10W
		< VIBRATOR >			
X1301	1-760-252-12	VIBRATOR, CRYSTAL (32.768kHz)			
X1302	1-760-489-11	VIBRATOR, CERAMIC (5MHz)			
**********					
	A-1167-361-A	PANEL BOARD, COMPLETE			
		**********			
		< CAPACITOR >			
C955	1-126-947-11	ELECT	47uF	20%	35V
C960	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C961	1-164-156-11	CERAMIC CHIP	0.1uF		25V
		< LED >			
D951	8-719-063-93	LED SLR325VC-N-T32 (STANDBY)			
D952	8-719-063-91	LED SLR325DC-P-T32 (DSGX)			
		< IC >			
IC951	6-600-349-21	IC NJL23H400A			
		< TRANSISTOR >			
Q951	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q952	8-729-600-22	TRANSISTOR	2SA1235-F		
		< RESISTOR >			
R944	1-216-833-11	METAL CHIP	10K	5%	1/10W
R945	1-216-833-11	METAL CHIP	10K	5%	1/10W
R946	1-216-833-11	METAL CHIP	10K	5%	1/10W
R947	1-216-809-11	METAL CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R948	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R949	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R950	1-216-821-11	METAL CHIP	1K	5%	1/10W
R951	1-216-833-11	METAL CHIP	10K	5%	1/10W
R952	1-216-821-11	METAL CHIP	1K	5%	1/10W
R953	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R954	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R955	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R956	1-216-833-11	METAL CHIP	10K	5%	1/10W
R957	1-216-837-11	METAL CHIP	22K	5%	1/10W
R962	1-216-821-11	METAL CHIP	1K	5%	1/10W
R963	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R964	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R965	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R966	1-216-833-11	METAL CHIP	10K	5%	1/10W
R967	1-216-837-11	METAL CHIP	22K	5%	1/10W
R972	1-216-821-11	METAL CHIP	1K	5%	1/10W
R973	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R974	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R975	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R989	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R990	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R991	1-216-821-11	METAL CHIP	1K	5%	1/10W
R992	1-216-833-11	METAL CHIP	10K	5%	1/10W
		< VARIABLE RESISTOR >			
RV951	1-478-061-11	ENCODER, ROTARY (PUSH ENTER, JOG)			
RV952	1-479-670-11	ENCODER, ROTARY (VOLUME)			
		< SWITCH >			
S951	1-762-875-21	SWITCH, KEYBOARD (I/⏻)			
S952	1-762-875-21	SWITCH, KEYBOARD (CD ▶II)			
S953	1-762-875-21	SWITCH, KEYBOARD (TUNER/BAND)			
S954	1-762-875-21	SWITCH, KEYBOARD (AUDIO IN)			
S955	1-762-875-21	SWITCH, KEYBOARD (■, CANCEL)			
S956	1-762-875-21	SWITCH, KEYBOARD (DISC SKIP/EX-CHANGE)			
S957	1-762-875-21	SWITCH, KEYBOARD (DSGX)			
S961	1-762-875-21	SWITCH, KEYBOARD (DISPLAY)			
S962	1-762-875-21	SWITCH, KEYBOARD (▶▶ ▷▷I, TUNING +)			
S963	1-762-875-21	SWITCH, KEYBOARD (I◁◁ ◀◀, TUNING –)			
S964	1-762-875-21	SWITCH, KEYBOARD (FOLDER +, CAT +)			
S965	1-762-875-21	SWITCH, KEYBOARD (FOLDER –, CAT –)			
S966	1-762-875-21	SWITCH, KEYBOARD (⏏)			
S971	1-762-875-21	SWITCH, KEYBOARD (DISC 1)			
S972	1-762-875-21	SWITCH, KEYBOARD (DISC 2)			
S973	1-762-875-21	SWITCH, KEYBOARD (DISC 3)			
S974	1-762-875-21	SWITCH, KEYBOARD (DISC 4)			
S975	1-762-875-21	SWITCH, KEYBOARD (DISC 5)			
**********					
	A-1167-367-A	POWER BOARD, COMPLETE (HPR90: US, CND/HPR99XM)			
	A-1171-434-A	POWER BOARD, COMPLETE (HPR90: E, E51)			
	A-1171-457-A	POWER BOARD, COMPLETE (HPR90: SP, AR, AUS)			
	A-1173-203-A	POWER BOARD, COMPLETE (HPR90: MX)			
		**********			
	1-533-233-31	FUSE HOLDER			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
⚠C1	1-165-529-11	MYLAR	0.22uF	10	275V
⚠C2	1-165-529-11	MYLAR	0.22uF	10	275V
⚠C4	1-119-886-11	CERAMIC	470PF	10%	250V
⚠C5	1-119-886-11	CERAMIC	470PF	10%	250V
⚠C11	1-100-877-11	ELECT (BLOCK)	270uF	20%	250V (HPR90: E, E51, MX)
⚠C11	1-100-923-21	ELECT	100uF	20%	450V (HPR90: SP, AR, AUS)
⚠C11	1-165-951-11	ELECT (BLOCK)	330uF	20%	250V (HPR90: US, CND/HPR99XM)
⚠C12	1-100-877-11	ELECT (BLOCK)	270uF	20%	250V (HPR90: E, E51, MX)
⚠C12	1-165-951-11	ELECT (BLOCK)	330uF	20%	250V (HPR90: US, CND/HPR99XM)
⚠C13	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
⚠C14	1-163-275-11	CERAMIC CHIP	0.001uF	5%	50V
⚠C15	1-126-964-11	ELECT	10uF	20%	50V
⚠C16	1-126-963-11	ELECT	4.7uF	20%	50V
⚠C17	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
⚠C18	1-115-339-11	CERAMIC CHIP	0.1uF	10%	50V
⚠C19	1-162-970-11	CERAMIC CHIP	0.01uF	10%	25V
⚠C20	1-126-947-11	ELECT	47uF	20%	35V
⚠C21	1-115-340-11	CERAMIC CHIP	0.22uF	10%	25V
⚠C22	1-107-824-11	CERAMIC	220PF	5%	1KV
⚠C23	1-107-824-11	CERAMIC	220PF	5%	1KV
⚠C24	1-100-399-11	FILM	33000PF	3%	1KV (HPR90: US, CND/HPR99XM)
⚠C24	1-165-610-11	FILM	33000PF	3%	800V (HPR90: E, E51, MX, SP, AR, AUS)
⚠C25	1-126-950-11	ELECT	330uF	20%	35V
⚠C26	1-112-877-51	CERAMIC	0.001uF	20%	250V
C31	1-112-238-21	ELECT	470uF	20%	25V
C32	1-100-924-21	ELECT	2200uF	20%	35V (HPR90: US, CND/HPR99XM)
C32	1-137-806-21	ELECT	1800uF	20%	35V (HPR90: E, E51, MX, SP, AR, AUS)
⚠C602	1-164-004-11	CERAMIC CHIP	0.1uF	10%	25V
⚠C603	1-162-966-11	CERAMIC CHIP	0.0022uF	10%	50V
⚠C604	1-126-964-11	ELECT	10uF	20%	50V
⚠C606	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C609	1-126-964-11	ELECT	10uF	20%	50V
C651	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C652	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C653	1-126-934-11	ELECT	220uF	20%	16V
C654	1-104-665-11	ELECT	100uF	20%	25V
		< CONNECTOR >			
CN1	1-564-321-00	PIN, CONNECTOR (3.96mm PITCH) 2P			
CN31	1-819-132-11	PIN, CONNECTOR 4P			
CN32	1-819-130-11	PIN, CONNECTOR 2P			
CN604	1-815-444-11	PIN, CONNECTOR (PWB) 3P			
		< DIODE >			
⚠D1	8-719-077-77	DIODE D3SB60F3			
⚠D2	8-719-081-58	DIODE S2V60-TA (HPR90: US, CND, E, E51, MX/HPR99XM)			

Ref. No.	Part No.	Description	Remark
⚠D3	8-719-081-58	DIODE S2V60-TA	
		(HPR90: US, CND, E, E51, MX/HPR99XM)	
⚠D11	8-719-979-64	DIODE UF4005/23	
⚠D14	6-500-567-31	DIODE 10ERB20-TB3	
⚠D15	6-501-178-01	DIODE UDZW-TE17-15B	
⚠D16	6-501-178-01	DIODE UDZW-TE17-15B	
⚠D17	6-500-137-01	DIODE BAT54HT1	
D31	8-719-510-09	DIODE D10SC6M	
D32	8-719-074-58	DIODE FCH10A10	
D33	8-719-982-15	DIODE MTZJ-27B	
		(HPR90: E, E51, MX, SP, AR, AUS)	
D33	8-719-110-69	DIODE RD27ESB4	
		(HPR90: US, CND/HPR99XM)	
⚠D602	8-719-073-23	DIODE ST02D-200TA	
⚠D603	6-500-567-31	DIODE 10ERB20-TB3	
D604	6-500-567-31	DIODE 10ERB20-TB3	
D652	8-719-071-26	DIODE HZU18B3TRF	
		< FUSE >	
⚠F1	1-576-232-51	FUSE (5A/250V)	
		< FERRITE BEAD >	
⚠FB11	1-410-397-21	FERRITE 1.1uH	
		< IC >	
⚠IC11	6-707-749-01	IC CXD9841P	
⚠IC601	6-708-726-01	IC MIP2F20MS1SO	
IC650	6-705-280-01	IC FAN431AZXA	
		< COIL >	
L602	1-412-525-31	INDUCTOR 10uH	
		< PHOTO COUPLER >	
⚠PH11	6-600-438-01	PHOTO COUPLER TLP421F (D4-GR)	
⚠PH601	6-600-438-01	PHOTO COUPLER TLP421F (D4-GR)	
⚠PH602	6-600-438-01	PHOTO COUPLER TLP421F (D4-GR)	
		< TRANSISTOR >	
⚠Q11	6-551-302-11	FET 2SK3561	
		(HPR90: US, CND/HPR99XM)	
⚠Q11	6-551-319-01	FET 2SK3563 (LB2SONY)	
		(HPR90: E, E51, MX, SP, AR, AUS)	
⚠Q12	6-551-302-11	FET 2SK3561	
		(HPR90: US, CND/HPR99XM)	
⚠Q12	6-551-319-01	FET 2SK3563 (LB2SONY)	
		(HPR90: E, E51, MX, SP, AR, AUS)	
⚠Q601	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q650	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q651	8-729-120-28	TRANSISTOR 2SC1623-L5L6	
Q652	8-729-600-22	TRANSISTOR 2SA1235-F	
		< RESISTOR >	
⚠R1	1-219-237-11	SOLID 3.3M 20% 1/2W F	
		(HPR90: US, CND/HPR99XM)	
⚠R2	1-219-512-11	METAL 2.2M 5% 1/2W F	
⚠R3	1-219-759-11	METAL 1M 5% 1/2W F	
		(HPR90: E, E51)	

Ref. No.	Part No.	Description	Remark
⚠R4	1-219-759-11	METAL 1M 5% 1/2W F	
		(HPR90: E, E51)	
⚠R10	1-218-887-11	METAL CHIP 47K 0.5% 1/10W	
⚠R11	1-216-864-11	SHORT CHIP 0	
⚠R12	1-245-502-21	METAL 4.7M 2% 1/4W F	
⚠R13	1-245-502-21	METAL 4.7M 2% 1/4W F	
⚠R14	1-218-911-11	METAL CHIP 470K 0.5% 1/10W	
⚠R15	1-218-881-11	METAL CHIP 27K 0.5% 1/10W	
⚠R16	1-218-823-11	METAL CHIP 100 0.5% 1/10W	
⚠R17	1-211-989-11	METAL CHIP 68 0.5% 1/10W	
⚠R18	1-216-833-11	METAL CHIP 10K 5% 1/10W	
⚠R20	1-216-833-11	METAL CHIP 10K 5% 1/10W	
⚠R22	1-249-417-11	CARBON 1K 5% 1/4W F	
⚠R23	1-219-984-51	METAL 0.1 5% 2W F	
⚠R24	1-216-821-11	METAL CHIP 1K 5% 1/10W	
⚠R25	1-247-694-11	CARBON 33 5% 1/4W F	
⚠R27	1-216-797-11	METAL CHIP 10 5% 1/10W	
⚠R29	1-216-797-11	METAL CHIP 10 5% 1/10W	
R32	1-216-821-11	METAL CHIP 1K 5% 1/10W	
R33	1-216-817-11	METAL CHIP 470 5% 1/10W	
R41	1-216-845-11	METAL CHIP 100K 5% 1/10W	
⚠R603	1-216-852-11	METAL CHIP 390K 5% 1/10W	
⚠R604	1-249-401-11	CARBON 47 5% 1/4W F	
⚠R605	1-216-835-11	METAL CHIP 15K 5% 1/10W	
⚠R606	1-249-381-11	CARBON 1 5% 1/4W F	
⚠R607	1-216-864-11	SHORT CHIP 0	
⚠R608	1-216-821-11	METAL CHIP 1K 5% 1/10W	
⚠R609	1-218-899-11	METAL CHIP 150K 0.5% 1/16W	
⚠R610	1-218-907-11	METAL CHIP 330K 0.5% 1/10W	
R651	1-216-821-11	METAL CHIP 1K 5% 1/10W	
R652	1-216-817-11	METAL CHIP 470 5% 1/10W	
R653	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R654	1-216-841-11	METAL CHIP 47K 5% 1/10W	
R655	1-218-863-11	METAL CHIP 4.7K 0.5% 1/10W	
R656	1-218-879-11	METAL CHIP 22K 0.5% 1/10W	
R657	1-216-805-11	METAL CHIP 47 5% 1/10W	
R658	1-218-887-11	METAL CHIP 47K 0.5% 1/10W	
R659	1-216-821-11	METAL CHIP 1K 5% 1/10W	
R660	1-216-821-11	METAL CHIP 1K 5% 1/10W	
R661	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R662	1-216-833-11	METAL CHIP 10K 5% 1/10W	
R663	1-216-817-11	METAL CHIP 470 5% 1/10W	
		< SWITCH >	
⚠S1	1-762-753-11	SWITCH, VOLTAGE SELECTION	
		(VOLTAGE SELECTOR) (HPR90: E, E51)	
		< LINE FILTER/TRANSFORMER >	
⚠T1	1-443-941-11	TRANSFORMER, LINE FILTER	
		(HPR90: SP, AR, AUS)	
⚠T1	1-457-125-11	COIL, LINE FILTER	
		(HPR90: US, CND, E, E51, MX/HPR99XM)	
⚠T31	1-443-940-11	TRANSFORMER, CONVERTER	
		(HPR90: US, CND/HPR99XM)	
⚠T31	1-443-943-11	TRANSFORMER, CONVERTER	
		(HPR90: E, E51, MX, SP, AR, AUS)	
⚠T603	1-443-942-11	TRANSFORMER, DC-DC CONVERTER	

Ref. No.	Part No.	Description			Remark
		< TERMINAL >			
TB1	1-695-915-11	TAB (CONTACT)			
		< THERMISTOR >			
⚠TH1	1-802-075-11	THERMISTOR, NTC (HPR90: SP, AR, AUS)			
⚠TH1	1-805-901-11	THERMISTOR, NTC (HPR90: US, CND, E, E51, MX/HPR99XM)			
⚠TH2	1-805-901-11	THERMISTOR, NTC (HPR90: US, CND, E, E51, MX/HPR99XM)			
		< TAB >			
TK3	1-537-771-21	TERMINAL BOARD, GROUND			
		< VARISTOR >			
⚠VR001	1-805-481-21	VARISTOR (HPR90: US, CND, MX/HPR99XM)			
⚠VR002	1-802-094-21	VARISTOR (HPR90: E, E51)			
⚠VR003	1-802-094-21	VARISTOR (HPR90: E, E51)			
**********					
		SP BOARD			
		********			
		< CAPACITOR >			
C851	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C852	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C853	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
C854	1-164-315-11	CERAMIC CHIP	470PF	5%	50V
		< CONNECTOR >			
CN850	1-819-130-11	PIN, CONNECTOR 2P			
CN870	1-819-130-11	PIN, CONNECTOR 2P			
		< TERMINAL >			
J860	1-537-114-21	TERMINAL BOARD (SPEAKER)			
**********					
	A-1184-933-A	XM BOARD, COMPLETE (HPR99XM)			
		**********			
		< CAPACITOR >			
C001	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C002	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C003	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C004	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C005	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C006	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C007	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C008	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C009	1-128-993-21	ELECT CHIP	22uF	20%	10V
C010	1-128-993-21	ELECT CHIP	22uF	20%	10V
C011	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C012	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C014	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C015	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C016	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C017	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C018	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C019	1-162-915-11	CERAMIC CHIP	10PF	0.5PF	50V
C021	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C022	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C023	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C024	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C025	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C041	1-128-993-21	ELECT CHIP	22uF	20%	10V
C042	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C043	1-124-779-00	ELECT CHIP	10uF	20%	16V
C044	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C051	1-128-993-21	ELECT CHIP	22uF	20%	10V
C052	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C053	1-128-996-11	ELECT CHIP	4.7uF	20%	50V
C055	1-124-779-00	ELECT CHIP	10uF	20%	16V
C056	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C057	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C061	1-216-864-11	SHORT CHIP	0		
C062	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C063	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C064	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C065	1-124-779-00	ELECT CHIP	10uF	20%	16V
C066	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
C067	1-164-357-11	CERAMIC CHIP	0.001uF	5%	50V
		< CONNECTOR >			
CN001	1-793-580-11	CONNECTOR, FFC (LIF (NON-Z1F)) 15P			
		< DIODE >			
D011	6-500-848-01	DIODE MC2840-T112-1			
D012	6-500-848-01	DIODE MC2840-T112-1			
		< JUMPER RESISTOR/FERRITE BEAD >			
FB001	1-216-295-00	SHORT CHIP	0		
FB002	1-216-295-00	SHORT CHIP	0		
FB021	1-216-295-00	SHORT CHIP	0		
FB022	1-216-295-00	SHORT CHIP	0		
FB041	1-414-813-11	FERRITE, EMI (SMD) (2012)			
		< IC >			
IC001	6-709-251-01	IC F2602E-01-TR			
IC041	6-708-476-01	IC AK4384ET-E2			
IC051	8-759-656-83	IC NJM4580MD- (TE2)			
		< CONNECTOR >			
J001	1-793-642-21	CONNECTOR (USB) (4P), SQUARE (XM)			
		< COIL >			
L001	1-469-523-91	INDUCTOR	2.2uH		
L002	1-469-523-91	INDUCTOR	2.2uH		
		< TRANSISTOR >			
Q001	8-729-027-43	TRANSISTOR	DTC114EKA-T146		
Q003	6-551-248-01	TRANSISTOR	NTJS3151PT1G		
		< RESISTOR >			
R001	1-216-845-11	METAL CHIP	100K	5%	1/10W
R002	1-216-845-11	METAL CHIP	100K	5%	1/10W
R003	1-216-845-11	METAL CHIP	100K	5%	1/10W

Ref. No.	Part No.	Description			Remark
R004	1-216-845-11	METAL CHIP	100K	5%	1/10W
R005	1-216-845-11	METAL CHIP	100K	5%	1/10W
R006	1-216-845-11	METAL CHIP	100K	5%	1/10W
R007	1-216-833-11	METAL CHIP	10K	5%	1/10W
R008	1-216-821-11	METAL CHIP	1K	5%	1/10W
R009	1-216-821-11	METAL CHIP	1K	5%	1/10W
R010	1-216-809-11	METAL CHIP	100	5%	1/10W
R011	1-216-809-11	METAL CHIP	100	5%	1/10W
R012	1-216-845-11	METAL CHIP	100K	5%	1/10W
R014	1-216-809-11	METAL CHIP	100	5%	1/10W
R015	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R016	1-216-817-11	METAL CHIP	470	5%	1/10W
R017	1-216-809-11	METAL CHIP	100	5%	1/10W
R018	1-216-809-11	METAL CHIP	100	5%	1/10W
R019	1-216-809-11	METAL CHIP	100	5%	1/10W
R020	1-216-837-11	METAL CHIP	22K	5%	1/10W
R021	1-216-809-11	METAL CHIP	100	5%	1/10W
R022	1-216-809-11	METAL CHIP	100	5%	1/10W
R023	1-216-809-11	METAL CHIP	100	5%	1/10W
R024	1-216-809-11	METAL CHIP	100	5%	1/10W
R025	1-216-809-11	METAL CHIP	100	5%	1/10W
R026	1-216-809-11	METAL CHIP	100	5%	1/10W
R031	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R032	1-216-841-11	METAL CHIP	47K	5%	1/10W
R033	1-216-841-11	METAL CHIP	47K	5%	1/10W
R034	1-216-841-11	METAL CHIP	47K	5%	1/10W
R035	1-216-841-11	METAL CHIP	47K	5%	1/10W
R036	1-216-833-11	METAL CHIP	10K	5%	1/10W
R037	1-216-833-11	METAL CHIP	10K	5%	1/10W
R051	1-216-841-11	METAL CHIP	47K	5%	1/10W
R052	1-216-841-11	METAL CHIP	47K	5%	1/10W
R055	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R056	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R057	1-216-821-11	METAL CHIP	1K	5%	1/10W
R065	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R066	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R067	1-216-821-11	METAL CHIP	1K	5%	1/10W
		< VIBRATOR >			
X001	1-760-841-11	VIBRATOR, CRYSTAL (45.158MHz)			
**********					
		XM REG BOARD (HPR99XM)			
		**********			
		< CAPACITOR >			
C1210	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1215	1-126-934-11	ELECT	220uF	20%	16V
		< DIODE >			
D1214	8-719-085-36	DIODE 11EQS04-TB5			
		< IC >			
IC1206	8-759-231-53	IC TA7805S			
**********					

Ref. No.	Part No.	Description	Remark
		MISCELLANEOUS	
		**********	
⚠7	1-775-790-71	CORD, POWER (HPR90: AUS)	
⚠7	1-827-226-31	CORD, POWER (HPR90: E, MX)	
⚠7	1-829-387-11	CORD, POWER (HPR90: AR)	
⚠7	1-830-188-11	CORD, POWER (HPR90: E51, SP)	
⚠7	1-830-190-11	CORD, POWER (HPR90: US, CND/HPR99XM)	
10	1-832-438-21	CABLE, FLEXIBLE FLAT (23 CORE)	
11	1-832-847-21	CABLE, FLEXIBLE FLAT (15 CORE)	
62	1-832-437-21	CABLE, FLEXIBLE FLAT (9 CORE)	
71	1-831-781-21	CABLE, FLEXIBLE FLAT (11 CORE)	
101	1-832-435-21	CABLE, FLEXIBLE FLAT (9 CORE)	
102	1-693-711-11	TUNER (FM/AM)	(HPR90: E, E51, MX, SP, AR, AUS)
102	1-693-713-11	TUNER (FM/AM)	(HPR90: US, CND/HPR99XM)
107	1-400-932-11	FILTER, CLAMP	
108	1-832-866-21	CABLE, FLEXIBLE FLAT (19 CORE)	
111	1-832-844-21	CABLE, FLEXIBLE FLAT (15 CORE)	(HPR99XM)
201	1-797-409-11	MECHANICAL, CD (DLM5B)	
⚠205	A-4735-357-A	OPTICAL PICK-UP BLOCK (KSM-213DHAP) (Including optical pick-up, spindle motor (M401), sled motor (M402))	
207	1-832-404-21	CABLE, FLEXIBLE FLAT (16 CORE)	
S101	1-771-853-11	SWITCH, DETECTION (LIMIT)	
**********			
		ACCESSORIES	
		**********	
⚠	1-569-008-32	ADAPTOR, CONVERSION (HPR90: E51, SP)	

MEMO

HCD-HPR90/HPR99XM

SONY

SERVICE MANUAL

Ver. 1.2 2007.01

US Model
Canadian Model
HCD-HPR90/HPR99XM
E Model
Australian Model
HCD-HPR90

SUPPLEMENT-1

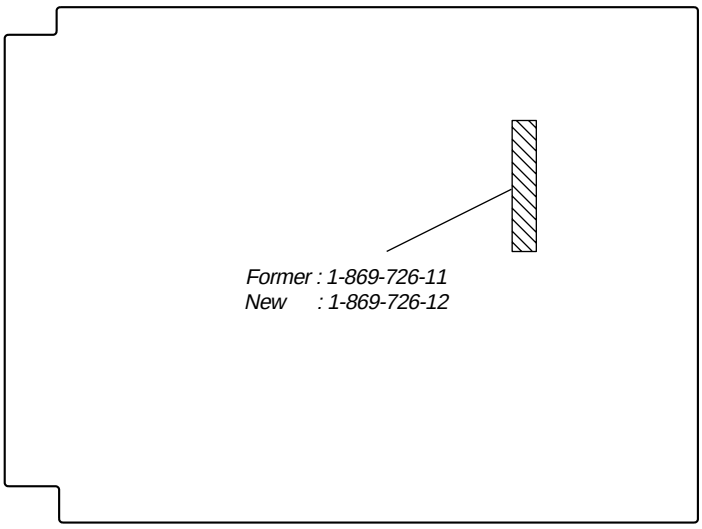
File this supplement with the service manual.

Subject: Change of MAIN board (Suffix-12)

In this set, MAIN board has been changed in the midway of production.
Printed wiring board, schematic diagram and electrical parts list of new type are described in this supplement-1.
Refer to original service manual for other information.

1. NEW/FORMER DISCRIMINATION

–MAIN Board (Component Side) –



2. DIAGRAMS

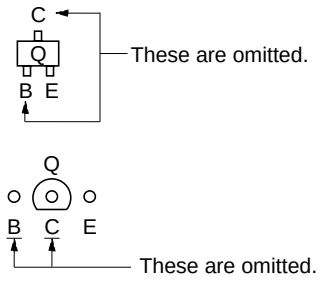
- **Note for Printed Wiring Boards and Schematic Diagrams**

Note on Printed Wiring Board:

- ○——— : parts extracted from the component side.
- ——— : parts extracted from the conductor side.
- △ : internal component.
- ▭ : Pattern from the side which enables seeing.

(The other layers' patterns are not indicated.)

- Indication of transistor

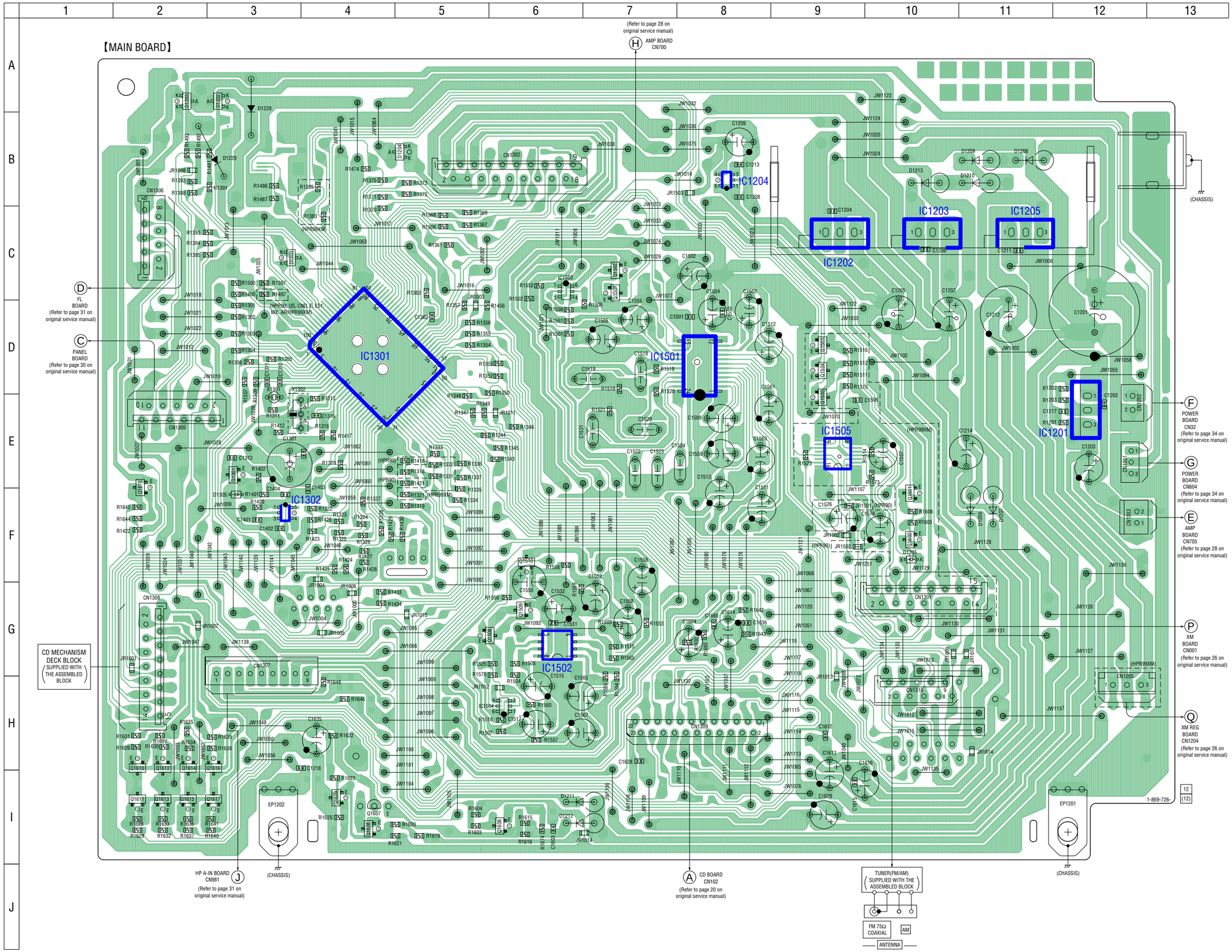


Note on Schematic Diagram:

- All capacitors are in µF unless otherwise noted. (p: pF) 50 WV or less are not indicated except for electrolytics and tantalums.
- All resistors are in Ω and 1/4 W or less unless otherwise specified.
- △ : internal component.
- ▬▬ : B+ Line.
- ▬ ▬ ▬ : B– Line.
- Voltages are dc with respect to ground under no-signal (detuned) conditions.
  no mark : TUNER (FM/AM)
  ( ) : CD PLAY
  ⟨⟨ ⟩⟩ : XM
- Voltages are taken with a VOM (Input impedance 10 MΩ). Voltage variations may be noted due to normal production tolerances.
- Signal path.
  ⇨ : TUNER (FM/AM)
  ⇛ : XCD PLAY
  ⬟ : XM
  ➡ : AUDIO IN
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  CND : Canadian model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  SP : Singapore model

2-1. PRINTED WIRING BOARD – MAIN Board –

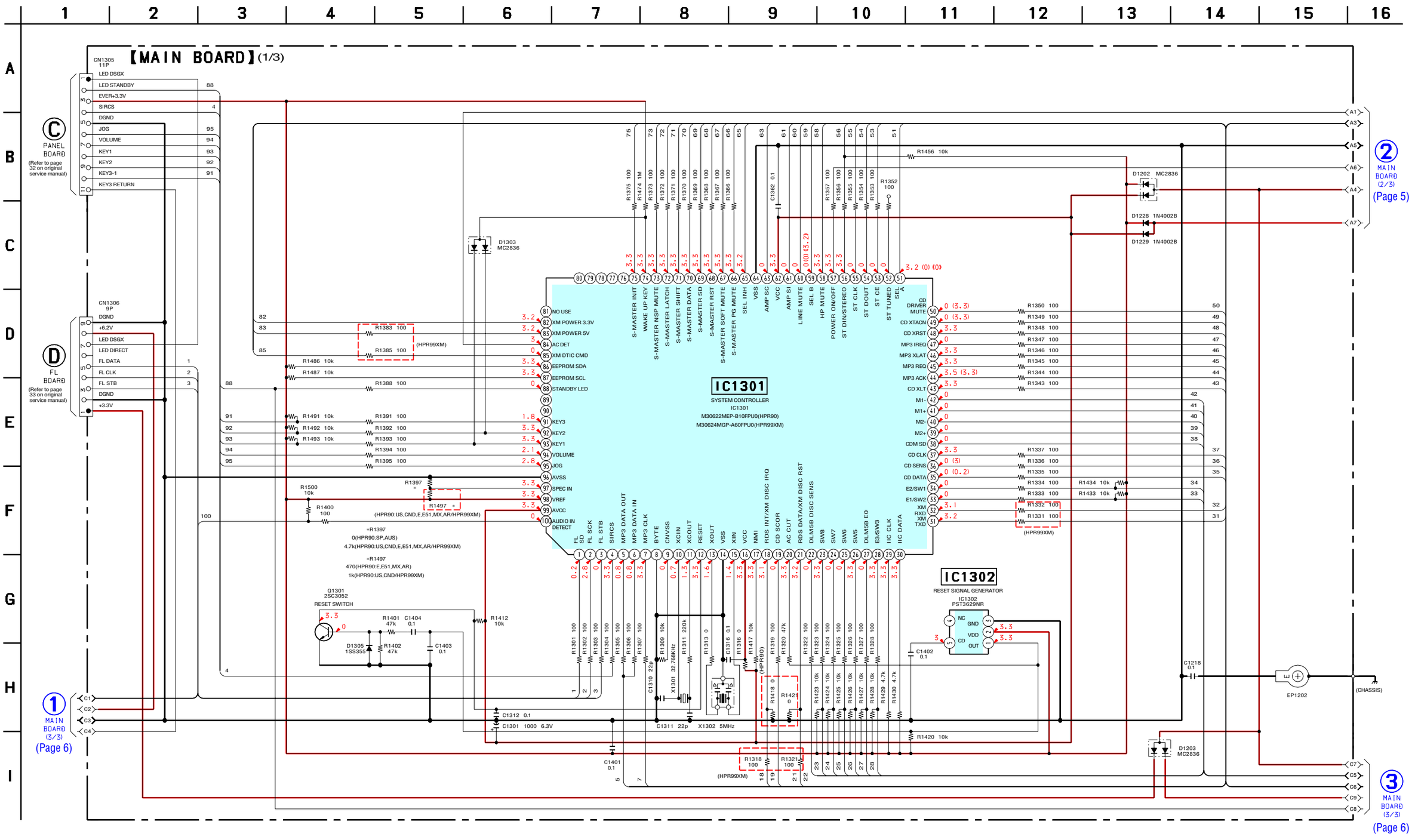
:Uses unleaded solder.


【MAIN BOARD】
(Refer to page 28 on original service manual)
AMP BOARD CN700
IC1204
IC1203
IC1205
IC1202
IC1301
IC1501
IC1505
IC1201
IC1302
IC1502
(CHASSIS)
FL BOARD (Refer to page 31 on original service manual)
PANEL BOARD (Refer to page 30 on original service manual)
CD MECHANISM DECK BLOCK (SUPPLIED WITH THE ASSEMBLED BLOCK)
POWER BOARD CN32 (Refer to page 34 on original service manual)
POWER BOARD CN604 (Refer to page 34 on original service manual)
AMP BOARD CN705 (Refer to page 28 on original service manual)
XM BOARD CN001 (Refer to page 26 on original service manual)
XM REG BOARD CN1204 (Refer to page 26 on original service manual)
HP A-IN BOARD CN981 (Refer to page 31 on original service manual)
CD BOARD CN102 (Refer to page 20 on original service manual)
TUNER(FM/AM) (SUPPLIED WITH THE ASSEMBLED BLOCK)
FM 75Ω COAXIAL
AM
ANTENNA
EP1202
EP1201
(HPR90)
(HPR99XM)
1-869-726-

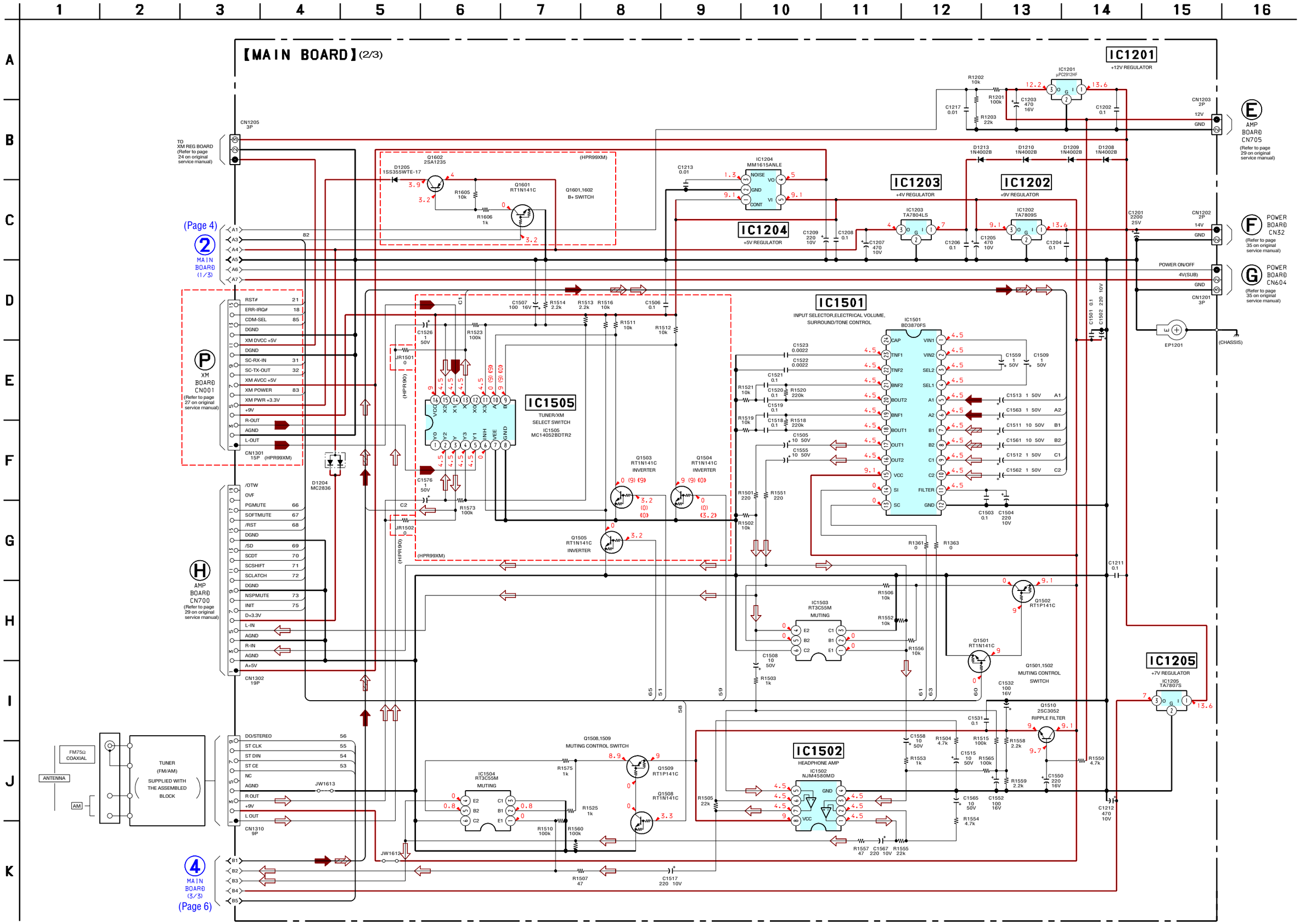
- **Semiconductor Location**

Ref. No.	Location
D1202	A-3
D1203	A-2
D1204	B-5
D1205	F-10
D1206	F-11
D1207	F-11
D1208	B-11
D1209	B-11
D1210	B-11
D1211	I-6
D1212	I-6
D1213	B-10
D1228	A-3
D1229	B-3
D1303	C-3
D1305	F-3
IC1201	E-12
IC1202	C-9
IC1203	C-10
IC1204	B-8
IC1205	C-11
IC1301	D-4
IC1302	F-3
IC1501	D-6
IC1502	G-6
IC1503	C-6
IC1504	H-6
IC1505	E-9
Q1301	E-3
Q1501	C-7
Q1502	C-7
Q1503	E-9
Q1504	D-9
Q1505	D-9
Q1508	G-6
Q1509	G-6
Q1510	F-6
Q1601	F-10
Q1602	F-10
Q1606	I-6
Q1607	I-4
Q1608	I-4
Q1609	I-4
Q1610	H-2
Q1611	I-2
Q1612	H-2
Q1613	I-2
Q1614	H-2
Q1615	I-2
Q1616	H-3
Q1617	I-3
Q1618	E-2

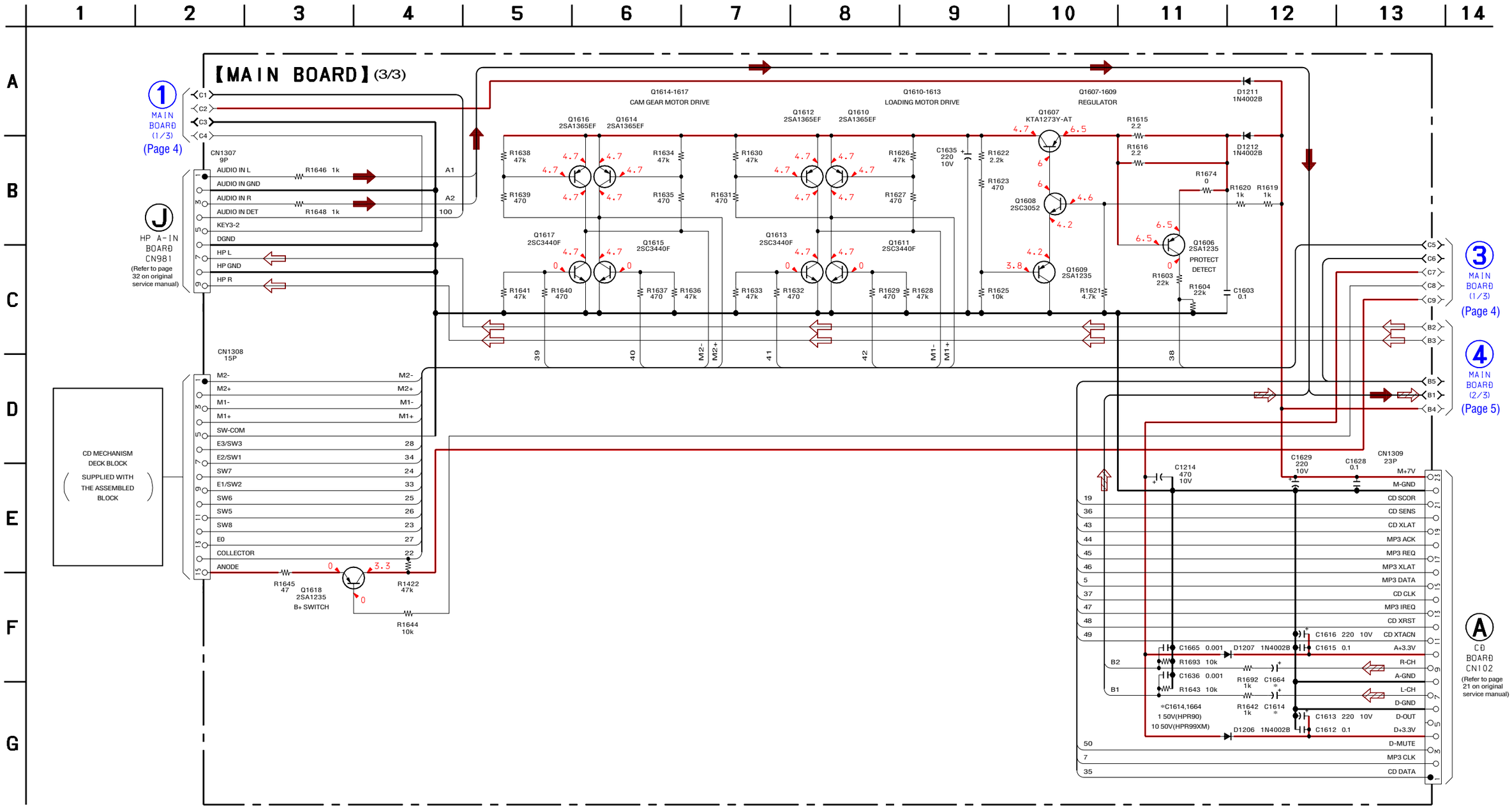
2-2. SCHEMATIC DIAGRAM – MAIN Section (1/3) –



2-3. SCHEMATIC DIAGRAM – MAIN Section (2/3) – • See page 37 for IC Block Diagrams.



2-4. SCHEMATIC DIAGRAM – MAIN Section (3/3) –



MAIN

3. ELECTRICAL PARTS LIST

NOTE:

- Due to standardization, replacements in the parts list may be different from the parts specified in the diagrams or the components used on the set.
- -XX and -X mean standardized parts, so they may have some difference from the original one.
- Items marked "*" are not stocked since they are seldom required for routine service. Some delay should be anticipated when ordering these items.
- CAPACITORS
  uF: µF
- COILS
  uH: µH
- RESISTORS
  All resistors are in ohms.
  METAL: Metal-film resistor.
  METAL OXIDE: Metal oxide-film resistor.
  F: nonflammable
- SEMICONDUCTORS
  In each case, u: µ, for example:
  uA... : µA... uPA... : µPA...
  uPB... : µPB... uPC... : µPC...
  uPD... : µPD...
- Abbreviation
  AR : Argentina model
  AUS : Australian model
  CND : Canadian model
  E51 : Chilean and Peruvian models
  MX : Mexican model
  SP : Singapore model

When indicating parts by reference number, please include the board.

Ref. No.	Part No.	Description			Remark
	A-1167-363-A	MAIN BOARD, COMPLETE (HPR90: US, CND)			
	A-1167-403-A	MAIN BOARD, COMPLETE (HPR99XM)			
	A-1171-432-A	MAIN BOARD, COMPLETE (HPR90: E, E51)			
	A-1171-456-A	MAIN BOARD, COMPLETE (HPR90: AR)			
	A-1171-473-A	MAIN BOARD, COMPLETE (HPR90: SP, AUS)			
	A-1173-202-A	MAIN BOARD, COMPLETE (HPR90: MX)			
		**********			
	7-685-646-79	SCREW +BVTP 3X8 TYPE2 N-S			
		< CAPACITOR >			
C1201	1-126-943-11	ELECT	2200uF	20%	25V
C1202	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1203	1-126-935-11	ELECT	470uF	20%	16V
C1204	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1205	1-126-935-11	ELECT	470uF	20%	16V
C1206	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1207	1-126-935-11	ELECT	470uF	20%	16V
C1208	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1209	1-126-934-11	ELECT	220uF	20%	16V
C1211	1-100-566-91	CERAMIC CHIP	0.1uF	10%	25V
C1212	1-126-935-11	ELECT	470uF	20%	16V
C1213	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C1214	1-126-935-11	ELECT	470uF	20%	16V
C1217	1-107-726-91	CERAMIC CHIP	0.01uF	10%	16V
C1218	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1301	1-126-916-11	ELECT	1000uF	20%	6.3V
C1310	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1311	1-162-919-11	CERAMIC CHIP	22PF	5%	50V
C1312	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1316	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1362	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1401	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1402	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1403	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1404	1-107-826-11	CERAMIC CHIP	0.1uF	10%	16V
C1501	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1502	1-126-934-11	ELECT	220uF	20%	16V
C1503	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1504	1-126-934-11	ELECT	220uF	20%	16V
C1505	1-126-964-11	ELECT	10uF	20%	50V
C1506	1-164-156-11	CERAMIC CHIP	0.1uF		25V (HPR99XM)

Ref. No.	Part No.	Description			Remark
C1507	1-126-933-11	ELECT	100uF	20%	16V (HPR99XM)
C1508	1-126-964-11	ELECT	10uF	20%	50V
C1509	1-126-960-11	ELECT	1uF	20%	50V
C1511	1-126-964-11	ELECT	10uF	20%	50V
C1512	1-126-960-11	ELECT	1uF	20%	50V
C1513	1-126-960-11	ELECT	1uF	20%	50V
C1515	1-126-964-11	ELECT	10uF	20%	50V
C1517	1-126-934-11	ELECT	220uF	20%	16V
C1518	1-130-495-00	MYLAR	0.1uF	5%	50V
C1519	1-130-495-00	MYLAR	0.1uF	5%	50V
C1520	1-130-495-00	MYLAR	0.1uF	5%	50V
C1521	1-130-495-00	MYLAR	0.1uF	5%	50V
C1522	1-130-475-00	MYLAR	0.0022uF	5%	50V
C1523	1-130-475-00	MYLAR	0.0022uF	5%	50V
C1526	1-126-960-11	ELECT	1uF	20%	50V (HPR99XM)
C1531	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1532	1-126-933-11	ELECT	100uF	20%	16V
C1550	1-126-934-11	ELECT	220uF	20%	16V
C1552	1-126-933-11	ELECT	100uF	20%	16V
C1555	1-126-964-11	ELECT	10uF	20%	50V
C1558	1-126-964-11	ELECT	10uF	20%	50V
C1559	1-126-960-11	ELECT	1uF	20%	50V
C1561	1-126-964-11	ELECT	10uF	20%	50V
C1562	1-126-960-11	ELECT	1uF	20%	50V
C1563	1-126-960-11	ELECT	1uF	20%	50V
C1565	1-126-964-11	ELECT	10uF	20%	50V
C1567	1-126-934-11	ELECT	220uF	20%	16V
C1576	1-126-960-11	ELECT	1uF	20%	50V (HPR99XM)
C1603	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1612	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1613	1-126-934-11	ELECT	220uF	20%	16V
C1614	1-126-960-11	ELECT	1uF	20%	50V (HPR90)
C1614	1-126-964-11	ELECT	10uF	20%	50V (HPR99XM)
C1615	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1616	1-126-934-11	ELECT	220uF	20%	16V
C1628	1-164-156-11	CERAMIC CHIP	0.1uF		25V
C1629	1-126-934-11	ELECT	220uF	20%	16V
C1635	1-126-934-11	ELECT	220uF	20%	16V
C1636	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V

MAIN

Ref. No.	Part No.	Description			Remark
C1664	1-126-960-11	ELECT	1uF	20%	50V (HPR90)
C1664	1-126-964-11	ELECT	10uF	20%	50V (HPR99XM)
C1665	1-162-964-11	CERAMIC CHIP	0.001uF	10%	50V
		< CONNECTOR >			
CN1203	1-815-443-11	PIN, CONNECTOR (PWB) 2P			
CN1205	1-819-131-11	PIN, CONNECTOR 3P (HPR99XM)			
CN1301	1-784-776-11	CONNECTOR, FFC 15P (HPR99XM)			
CN1302	1-784-780-11	CONNECTOR, FFC 19P			
CN1305	1-568-830-11	CONNECTOR, FFC 11P			
CN1306	1-568-828-11	CONNECTOR, FFC 9P			
CN1307	1-815-450-11	PIN, CONNECTOR (PWB) 9P			
CN1308	1-784-776-11	CONNECTOR, FFC 15P			
CN1309	1-779-291-11	CONNECTOR, FFC (LIF (NON-ZIF)) 23P			
CN1310	1-568-828-11	CONNECTOR, FFC 9P			
		< DIODE >			
D1202	8-719-000-07	DIODE MC2836			
D1203	8-719-000-07	DIODE MC2836			
D1204	8-719-000-07	DIODE MC2836			
D1205	6-501-193-01	DIODE 1SS355WTE-17 (HPR99XM)			
D1206	8-719-063-79	DIODE 1N4002B			
D1207	8-719-063-79	DIODE 1N4002B			
D1208	8-719-063-79	DIODE 1N4002B			
D1209	8-719-063-79	DIODE 1N4002B			
D1210	8-719-063-79	DIODE 1N4002B			
D1211	8-719-063-79	DIODE 1N4002B			
D1212	8-719-063-79	DIODE 1N4002B			
D1213	8-719-063-79	DIODE 1N4002B			
D1228	8-719-063-79	DIODE 1N4002B			
D1229	8-719-063-79	DIODE 1N4002B			
D1303	8-719-000-07	DIODE MC2836			
D1305	6-501-193-01	DIODE 1SS355WTE-17			
		< EARTH TERMINAL >			
EP1201	1-537-771-21	TERMINAL BOARD, GROUND			
EP1202	1-537-771-21	TERMINAL BOARD, GROUND			
		< IC/TRANSISTOR >			
IC1201	8-759-647-17	IC uPC2912HF			
IC1202	8-759-701-59	IC NJM78M09FA			
IC1203	6-703-546-01	IC TA7804LS			
IC1204	6-707-282-01	IC MM1615ANLE			
IC1205	8-759-071-48	IC TA7807S			
IC1301	6-807-016-01	IC M30624MGP-A60FPU0 (HPR99XM)			
IC1301	6-807-017-01	IC M30622MEP-B10FPU0 (HPR90)			
IC1302	6-701-680-01	IC PST3629NR			
IC1501	6-701-824-11	IC BD3870FS-E2			
IC1502	8-759-656-83	IC NJM4580MD- (TE2)			
IC1503	6-551-484-01	TRANSISTOR RT3C55M-TP-1B			
IC1504	6-551-484-01	TRANSISTOR RT3C55M-TP-1B			
IC1505	8-759-430-37	IC MC14052BDTR2 (HPR99XM)			
		< JUMPER RESISTOR >			
JR1001	1-216-864-11	SHORT CHIP	0		
JR1002	1-216-864-11	SHORT CHIP	0		
JR1003	1-216-864-11	SHORT CHIP	0		
JR1004	1-216-864-11	SHORT CHIP	0		
JR1005	1-216-864-11	SHORT CHIP	0		
JR1006	1-216-864-11	SHORT CHIP	0		
JR1007	1-216-864-11	SHORT CHIP	0		
JR1008	1-216-864-11	SHORT CHIP	0		
JR1009	1-216-864-11	SHORT CHIP	0		
JR1010	1-216-864-11	SHORT CHIP	0		
JR1011	1-216-864-11	SHORT CHIP	0		
JR1012	1-216-864-11	SHORT CHIP	0		
JR1013	1-216-864-11	SHORT CHIP	0		
JR1014	1-216-864-11	SHORT CHIP	0		
JR1501	1-216-864-11	SHORT CHIP	0 (HPR90)		
JR1502	1-216-864-11	SHORT CHIP	0 (HPR90)		
JR1503	1-216-864-11	SHORT CHIP	0		
JR1614	1-216-864-11	SHORT CHIP	0		
JR1618	1-216-864-11	SHORT CHIP	0		
		< TRANSISTOR >			
Q1301	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q1501	8-729-027-43	TRANSISTOR	DTC114EKA-T146		
Q1502	8-729-027-23	TRANSISTOR	DTA114EKA-T146		
Q1503	8-729-027-43	TRANSISTOR	DTC114EKA-T146 (HPR99XM)		
Q1504	8-729-027-43	TRANSISTOR	DTC114EKA-T146 (HPR99XM)		
Q1505	8-729-027-43	TRANSISTOR	DTC114EKA-T146 (HPR99XM)		
Q1508	8-729-027-43	TRANSISTOR	DTC114EKA-T146		
Q1509	8-729-027-23	TRANSISTOR	DTA114EKA-T146		
Q1510	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q1601	8-729-027-43	TRANSISTOR	DTC114EKA-T146 (HPR99XM)		
Q1602	8-729-600-22	TRANSISTOR	2SA1235-F (HPR99XM)		
Q1606	8-729-600-22	TRANSISTOR	2SA1235-F		
Q1607	8-729-040-76	TRANSISTOR	KTA1273-Y-AT		
Q1608	8-729-120-28	TRANSISTOR	2SC1623-L5L6		
Q1609	8-729-600-22	TRANSISTOR	2SA1235-F		
Q1610	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1611	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1612	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1613	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1614	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1615	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1616	8-729-024-43	TRANSISTOR	2SA1365-T112-1EF		
Q1617	8-729-047-62	TRANSISTOR	2SC3440-T12-1F		
Q1618	8-729-600-22	TRANSISTOR	2SA1235-F		
		< RESISTOR >			
R1201	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1202	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1203	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1301	1-216-809-11	METAL CHIP	100	5%	1/10W
R1302	1-216-809-11	METAL CHIP	100	5%	1/10W
R1303	1-216-809-11	METAL CHIP	100	5%	1/10W
R1304	1-216-809-11	METAL CHIP	100	5%	1/10W
R1305	1-216-809-11	METAL CHIP	100	5%	1/10W
R1306	1-216-809-11	METAL CHIP	100	5%	1/10W
R1307	1-216-809-11	METAL CHIP	100	5%	1/10W

Ref. No.	Part No.	Description			Remark
R1309	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1311	1-216-849-11	METAL CHIP	220K	5%	1/10W
R1313	1-216-864-11	SHORT CHIP	0		
R1316	1-216-864-11	SHORT CHIP	0		
R1318	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1319	1-216-809-11	METAL CHIP	100	5%	1/10W
R1320	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1321	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1322	1-216-809-11	METAL CHIP	100	5%	1/10W
R1323	1-216-809-11	METAL CHIP	100	5%	1/10W
R1324	1-216-809-11	METAL CHIP	100	5%	1/10W
R1325	1-216-809-11	METAL CHIP	100	5%	1/10W
R1326	1-216-809-11	METAL CHIP	100	5%	1/10W
R1327	1-216-809-11	METAL CHIP	100	5%	1/10W
R1328	1-216-809-11	METAL CHIP	100	5%	1/10W
R1331	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1332	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1333	1-216-809-11	METAL CHIP	100	5%	1/10W
R1334	1-216-809-11	METAL CHIP	100	5%	1/10W
R1335	1-216-809-11	METAL CHIP	100	5%	1/10W
R1336	1-216-809-11	METAL CHIP	100	5%	1/10W
R1337	1-216-809-11	METAL CHIP	100	5%	1/10W
R1343	1-216-809-11	METAL CHIP	100	5%	1/10W
R1344	1-216-809-11	METAL CHIP	100	5%	1/10W
R1345	1-216-809-11	METAL CHIP	100	5%	1/10W
R1346	1-216-809-11	METAL CHIP	100	5%	1/10W
R1347	1-216-809-11	METAL CHIP	100	5%	1/10W
R1348	1-216-809-11	METAL CHIP	100	5%	1/10W
R1349	1-216-809-11	METAL CHIP	100	5%	1/10W
R1350	1-216-809-11	METAL CHIP	100	5%	1/10W
R1352	1-216-809-11	METAL CHIP	100	5%	1/10W
R1353	1-216-809-11	METAL CHIP	100	5%	1/10W
R1354	1-216-809-11	METAL CHIP	100	5%	1/10W
R1355	1-216-809-11	METAL CHIP	100	5%	1/10W
R1356	1-216-809-11	METAL CHIP	100	5%	1/10W
R1357	1-216-809-11	METAL CHIP	100	5%	1/10W
R1361	1-216-864-11	SHORT CHIP	0		
R1363	1-216-864-11	SHORT CHIP	0		
R1366	1-216-809-11	METAL CHIP	100	5%	1/10W
R1367	1-216-809-11	METAL CHIP	100	5%	1/10W
R1368	1-216-809-11	METAL CHIP	100	5%	1/10W
R1369	1-216-809-11	METAL CHIP	100	5%	1/10W
R1370	1-216-809-11	METAL CHIP	100	5%	1/10W
R1371	1-216-809-11	METAL CHIP	100	5%	1/10W
R1372	1-216-809-11	METAL CHIP	100	5%	1/10W
R1373	1-216-809-11	METAL CHIP	100	5%	1/10W
R1375	1-216-809-11	METAL CHIP	100	5%	1/10W
R1383	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1385	1-216-809-11	METAL CHIP	100	5%	1/10W (HPR99XM)
R1388	1-216-809-11	METAL CHIP	100	5%	1/10W
R1391	1-216-809-11	METAL CHIP	100	5%	1/10W
R1392	1-216-809-11	METAL CHIP	100	5%	1/10W
R1393	1-216-809-11	METAL CHIP	100	5%	1/10W
R1394	1-216-809-11	METAL CHIP	100	5%	1/10W
R1395	1-216-809-11	METAL CHIP	100	5%	1/10W
R1397	1-216-829-11	METAL CHIP	4.7K	5%	1/10W (HPR90: US, CND, E, E51, MX, AR/HPR99XM)
R1397	1-216-864-11	SHORT CHIP	0 (HPR90: SP, AUS)		
R1400	1-216-809-11	METAL CHIP	100	5%	1/10W
R1401	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1402	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1412	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1417	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1418	1-216-864-11	SHORT CHIP	0 (HPR90)		
R1420	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1421	1-216-864-11	SHORT CHIP	0 (HPR90)		
R1422	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1423	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1424	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1425	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1426	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1427	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1428	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1429	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1430	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1433	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1434	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1456	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1474	1-216-857-11	METAL CHIP	1M	5%	1/10W
R1486	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1487	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1491	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1492	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1493	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1497	1-216-817-11	METAL CHIP	470	5%	1/10W (HPR90: E, E51, MX, AR)
R1497	1-216-821-11	METAL CHIP	1K	5%	1/10W (HPR90: US, CND/HRP99XM)
R1500	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1501	1-216-813-11	METAL CHIP	220	5%	1/10W
R1502	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1503	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1504	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1505	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1506	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1507	1-216-805-11	METAL CHIP	47	5%	1/10W
R1510	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1511	1-216-833-11	METAL CHIP	10K	5%	1/10W (HPR99XM)
R1512	1-216-833-11	METAL CHIP	10K	5%	1/10W (HPR99XM)
R1513	1-216-825-11	METAL CHIP	2.2K	5%	1/10W (HPR99XM)
R1514	1-216-825-11	METAL CHIP	2.2K	5%	1/10W (HPR99XM)
R1515	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1516	1-216-833-11	METAL CHIP	10K	5%	1/10W (HPR99XM)
R1518	1-216-849-11	METAL CHIP	220K	5%	1/10W
R1519	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1520	1-216-849-11	METAL CHIP	220K	5%	1/10W

MAIN

Ref. No.	Part No.	Description			Remark
R1521	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1523	1-216-845-11	METAL CHIP	100K	5%	1/10W (HPR99XM)
R1525	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1550	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1551	1-216-813-11	METAL CHIP	220	5%	1/10W
R1552	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1553	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1554	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1555	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1556	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1557	1-216-805-11	METAL CHIP	47	5%	1/10W
R1558	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1559	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1560	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1565	1-216-845-11	METAL CHIP	100K	5%	1/10W
R1573	1-216-845-11	METAL CHIP	100K	5%	1/10W (HPR99XM)
R1575	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1603	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1604	1-216-837-11	METAL CHIP	22K	5%	1/10W
R1605	1-216-833-11	METAL CHIP	10K	5%	1/10W (HPR99XM)
R1606	1-216-821-11	METAL CHIP	1K	5%	1/10W (HPR99XM)
R1615	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R1616	1-216-789-11	METAL CHIP	2.2	5%	1/10W
R1619	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1620	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1621	1-216-829-11	METAL CHIP	4.7K	5%	1/10W
R1622	1-216-825-11	METAL CHIP	2.2K	5%	1/10W
R1623	1-216-817-11	METAL CHIP	470	5%	1/10W
R1625	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1626	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1627	1-216-817-11	METAL CHIP	470	5%	1/10W
R1628	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1629	1-216-817-11	METAL CHIP	470	5%	1/10W
R1630	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1631	1-216-817-11	METAL CHIP	470	5%	1/10W
R1632	1-216-817-11	METAL CHIP	470	5%	1/10W
R1633	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1634	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1635	1-216-817-11	METAL CHIP	470	5%	1/10W
R1636	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1637	1-216-817-11	METAL CHIP	470	5%	1/10W
R1638	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1639	1-216-817-11	METAL CHIP	470	5%	1/10W
R1640	1-216-817-11	METAL CHIP	470	5%	1/10W
R1641	1-216-841-11	METAL CHIP	47K	5%	1/10W
R1642	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1643	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1644	1-216-833-11	METAL CHIP	10K	5%	1/10W
R1645	1-216-805-11	METAL CHIP	47	5%	1/10W
R1646	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1648	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1674	1-216-864-11	SHORT CHIP	0		
R1692	1-216-821-11	METAL CHIP	1K	5%	1/10W
R1693	1-216-833-11	METAL CHIP	10K	5%	1/10W

Ref. No.	Part No.	Description	Remark
		< VIBRATOR >	
X1301	1-760-252-12	VIBRATOR, CRYSTAL (32.768kHz)	
X1302	1-760-489-11	VIBRATOR, CERAMIC (5MHz)	

MEMO

REVISION HISTORY

Clicking the version allows you to jump to the revised page.
Also, clicking the version at the upper right on the revised page allows you to jump to the next revised page.

Ver.	Date	Description of Revision
1.0	2006.03	New
1.1	2006.05	Addition of Singapore, Argentina and Australian models to HCD-HPR90
1.2	2007.01	Change of FL, HP A-IN, PANEL, POWER and SP boards (Suffix-12) Change of MAIN board (Suffix-12) (SUPPLEMENT-1) (ECN-ECB81359)